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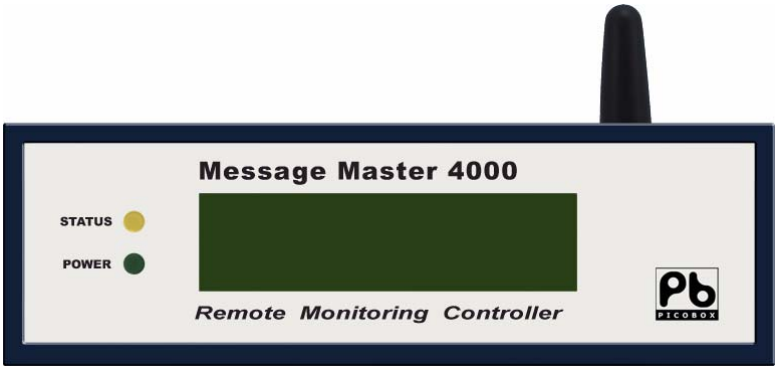
Message Master 4000

Remote Monitoring Controller
User Manual Version 2.02
Model: RMC



Important!

Please read this user manual carefully before using this device.

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Chapter 1: Introduction

Thank you for your purchase of PICOBOX Message Master 4000 series Remote Monitoring Controller. In this manual, the controller will sometimes be referred to as RMC. This controller has lots of powerful built-in features and functionalities yet it is easy to setup and use. You are advised to read through this manual to understand each feature in detail so as to fully exploit the capabilities of this product.

RMC is an alarm controller and also a SMS gateway. When used as an alarm controller, the device can monitor up to 8 (RMC1) or 16 (RMC2) digital inputs from different equipment interfaced to it. It accepts dry contact (volt-free) or voltage inputs. The user can define each input according to the type of equipment the inputs are interfaced to. When the input changes state from normal to alarm or vise-versa, SMS are sent out to mobile phone recipients. RMC has powerful features and is flexible, allowing users to decide how the messages are sent. RMC1 also has 4 analog inputs allowing the user to interface to any industry standard 4-20mA transmitters. Some examples are temperature, humidity, flow, current, power, pressure, and so on. Later part of this manual will describe each feature of the product in detail.

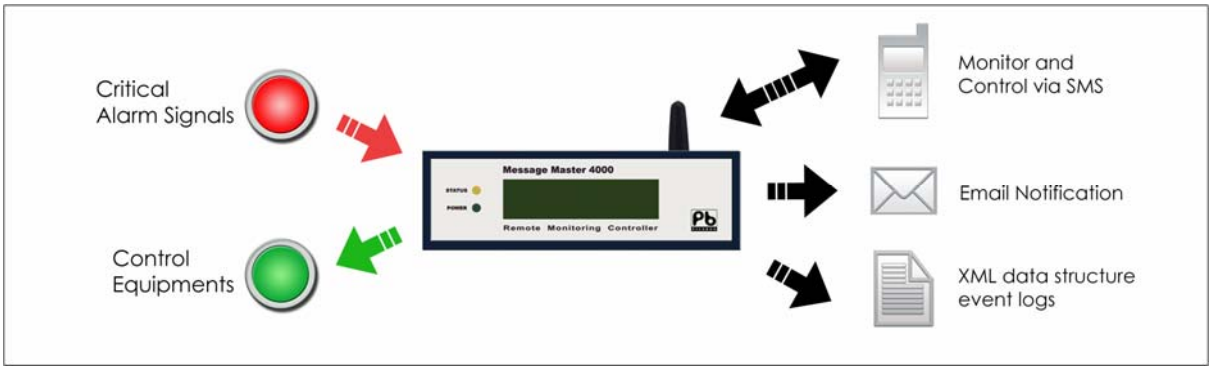


Figure 1.1 Product Overview

Chapter 2: Safe Use of Device

The following section contains important operating and maintenance (servicing) instructions. Please read it carefully.

Warnings

To reduce the risk of electric shock:

- Do not remove the cover (or back) of this device. There are no user-serviceable parts inside. Refer servicing to qualified service personnel.
- Do not expose this device to rain or moisture

To reduce the risk of electric shock and electromagnetic interference, use only recommended accessories.

Note

The serial number of this device is shown on the side of the product. You should record the number and other vital information here and retain this booklet as a permanent record of your purchase.

Model No.:

Serial No.:

Date of Purchase:

Dealer Purchased from:

Dealer Address:

Dealer Telephone No.:

Important Safety Instructions

In these safety instructions, the word [device] refers to the Message Master 4000 (RMC) and all its accessories.

Read Instructions – Read all the safety and operating instructions before operating the device.

- Retain Instructions – Save the safety and operating instructions for future reference.
- Heed Warnings – Heed all warnings on the device and in the operating instructions.
- Follow Instructions – Follow all operating and maintenance instructions.
- Cleaning – Unplug this device from the wall outlet before cleaning. Wipe the device with a clean soft cloth. If necessary, put a cloth in diluted neutral detergent and wring it well before wiping the device with it. Finally, clean the device with a clean dry cloth. Do not use benzene, thinner or other volatile liquids or pesticides as they may damage the

product's finishing. When using chemically treated cleaning cloths, observe their precautions accordingly.

- Accessories – Use only accessories recommended in this manual. Always use specified connection cables. Be careful to connect devices correctly.

- Water and Moisture (Hazard of electric shock) – Do not use the device near water or in rainy or moist situations.

- Ambient Temperature – Do not put this device near a heater.

- Placing or Moving – Do not place this device on an unstable cart, stand, tripod, bracket or table. The device may fall and cause serious damage to itself and serious injury to others. A device and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the device and cart combination to overturn.

- Power Sources – The AC adapter should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your premises, consult your device dealer or local power company.

- Power Cord Protection – Power cords should be routed so that they are not likely to be walked on, or pinched by items placed upon or against them. Pay particular attention to plugs and the point from which the cords exit the device.

- Outdoor Antenna Grounding – If an outside antenna is connected to the device, be sure the antenna is grounded so as to provide some protection against voltage surges and built-up static charges.

- Lightning – For added protection of this device during a lightning storm, or when it is left unattended and unused for long periods of time, disconnect it from the wall outlet and disconnect the antenna. This will prevent damage to the device due to lightning and power-line surges.

- Power Lines – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

- Overloading – Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

- Object and Liquid Entry – Never push objects of any kind into this device through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Be careful not to spill liquid of any kind onto the device.

- Servicing – Do not attempt to service this device yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified personnel. Opening the cover may void your warranty.

- Do not install the device in the following locations as this can cause a fire or electric shock:
  - Hot locations
  - Close to a fire
  - Very humid or dusty locations
  - Locations exposed to direct sunlight
  - Locations exposed to salt spray

- Close to flammable solvents (alcohol, thinners, etc.)

- If any of the following occurs, immediately switch the device OFF, unplug it from the mains power supply and contact your distributor or agent:
  - The device emits any smoke, heat, abnormal noise, or unusual odour
  - A metal object falls into the device
  - The device is damaged in some way

  Do not continue to use the device as this can cause a fire or electric shock.

- Please observe the following when using the device. Failure to do so can result in a fire or electric shock.
  - Do not use flammable sprays near the device.
  - Do not subject the device to strong impact.

Chapter 3: Product Overview

The Message Master 4000 series is a standalone device built around a 32 bit microcontroller. It has a built-in dual band GSM modem along with associated circuitries like switching power supply, optically coupled digital inputs, relay outputs, indicators, etc. RMC is IP based (Internet Protocol), comes with user friendly web user interface, TCP/IP suite of protocols and powerful feature set.

Features

Table 3.1 shows the product features of RMC.

Physical	
Name	Message Master 4000
Models	RMC1 and RMC2
Operating Voltage	9 to 30VDC, 2Watts max power consumption
Processor	32 bit 50Mhz microprocessor
Memory	Non volatile storage memory stores history logs
GSM modem	Dual Band GSM 900/1800 MHz Class 4 (2W at 900MHz) Class 1 (1W at 1800 MHz), optional Tri-band modem available
Operating Environment	0 - 55 degree Celsius, 0 - 90% non condensing
Size & Weight	125 (L) x 38 (H) x 100 (D) mm, 480 gm
Security Feature	2 Level security, Administrator and User level
Real Time Clock	Date time with Network Time Protocol Support
LCD Display	16 x 2 Characters with backlight, selectable status display
	Date and Time | Network Status | Device ID | Telco Signal Strength | Digital Input State | Digital Input Alarm State | Relay Output State | Analog Input Reading*
LED Indicators	a) 1 amber indicator for Telco network status
	b) 1 green indicator for Power
Communication port	1 x RJ45 port, Ethernet 10/100Mbit
Interface	HTML interface, accessible via web browser software
Network	
Network support	Static IP support
Network protocol	TCP (Transmission Control Protocol), IP (Internet Protocol), UDP (User Datagram Protocol), HTTP (Hyper Text Transfer Protocol), DNS (Domain Name Server), SNTP (Simple Network Time Protocol), SMTP (Simple Mail Transfer Protocol)

Digital Input	
No of Input points	8 (RMC1) or 16 (RMC2) optically coupled dry contact or voltage inputs
Configuration	Independent configuration of input description, open/close status description
Input Response Time	Individual selection of response time for each input from 0.2 to 30 seconds (trigger sensitivity)
Alarm State	Definable normally open or close as Alarm condition
Relay Output	
No of Output points	4 (RMC1) or 2 (RMC2) relay outputs, contacts rated at 30VDC 2A
Configuration	User defined output description
Output control	Through SMS or Local On / Off relay outputs through web browser
Auxiliary Contact Output	Option to activate 4th Output state automatically on Alarm state
Auxiliary Output duration	Option time interval from 1sec to infinity on Alarm state
Internal Buzzer	Option time interval from 10 to 60 secs on Alarm state
Analog Input *	
No of Analog points	4 analog input, 4-20mA, 10-bit resolutions
Configuration	Configurable input description, scaling, trigger delay, high/low alarm points
Analog Input Response Time	Individual selection of alarm delay triggering for each analog input from 2 to 30 secs (trigger sensitivity)
Email Alert	
Email Group	5 email recipients
	Server Authentication support
Time Stamp	Email sent with time stamps with configurable subject
Event Log	
Event Logging	Stores up to 500 History logs with Date / Time stamp, FIFO event recording
Data Format	XML (Extensible Markup Language), allows users to define their own tags in Excel or Web interface
Security	Enable or disable XML data access from external application
Remote Management	
Remote Command via SMS	a) Query health status
	b) Query input / output / analog* status
	c) On / Off/ Pulse output equipments / devices
	d) Add / Edit / Delete mobile phone numbers
	e) Query Operational/ Authorizer/ Escalation/ Forwarder mobile phone numbers
	f) Acknowledgements

SMS Alert	
Phone Groups	a) 40 mobile phone numbers for Operational
	b) 5 mobile phone numbers for 1st level Escalation
	c) 5 mobile phone numbers for 2nd level Escalation
	d) 1 mobile phone number for Forwarder
	e) accepts International Phone Number format
Configurable SMS Message	Digital inputs, relay outputs & analog input (2 messages per input, One for On State and Off State Triggering)
Auto Health Check	Programmable daily/weekly system health check
Time Stamp	SMS sent & received with time stamps up to the seconds

Table 3.1 Product Features

* Not available in RMC2

Package contents

1. Remote Monitoring Controller
2. 12V DC adapter
3. 10 way terminal block x 2
4. 6 way terminal block
5. GSM antenna, SMA mount
6. Ethernet Cross Cable
7. CD containing product brochure and user manual
8. Warranty card

Getting to know your product

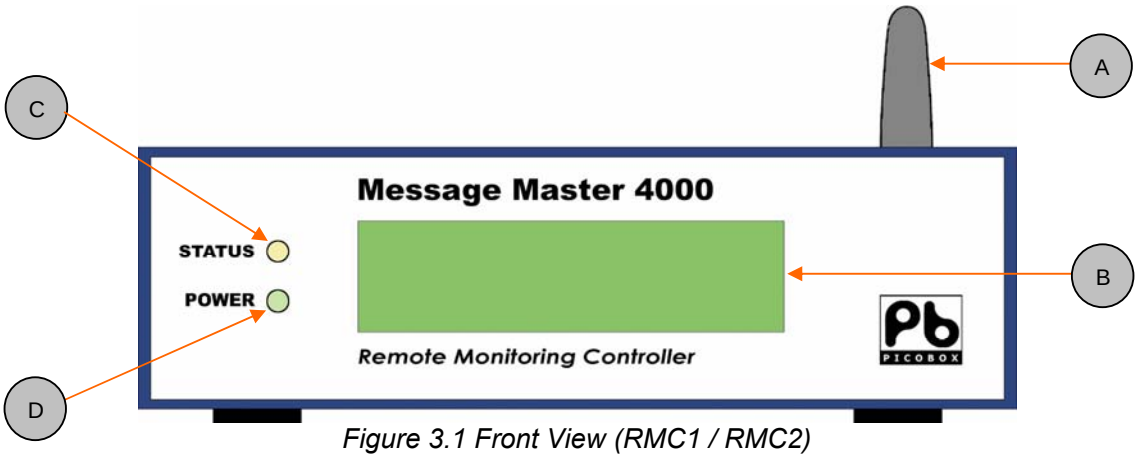


Figure 3.1 Front View (RMC1 / RMC2)

Label	Description	Comment
A	Antenna	SMA-mount Antenna
B	LCD	Display device information
C	Status LED	GSM operation status
D	Power LED	Power indicator

Table 3.2

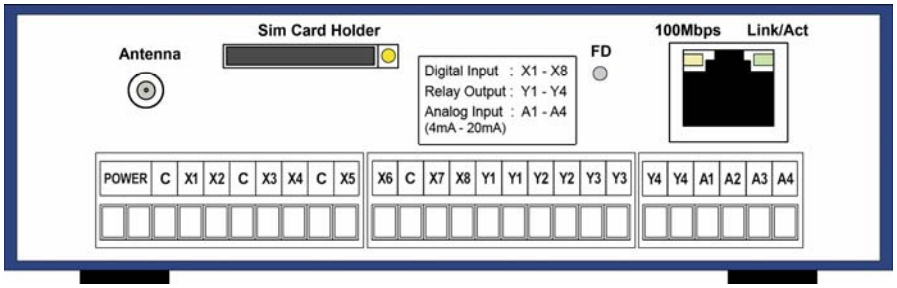

Sim Card Holder
Antenna
Digital Input : X1 - X8
Relay Output : Y1 - Y4
Analog Input : A1 - A4
(4mA - 20mA)
FD
100Mbps
Link/Act
POWER C X1 X2 C X3 X4 C X5
X6 C X7 X8 Y1 Y1 Y2 Y2 Y3 Y3
Y4 Y4 A1 A2 A3 A4

Figure 3.2 Back View (RMC1)

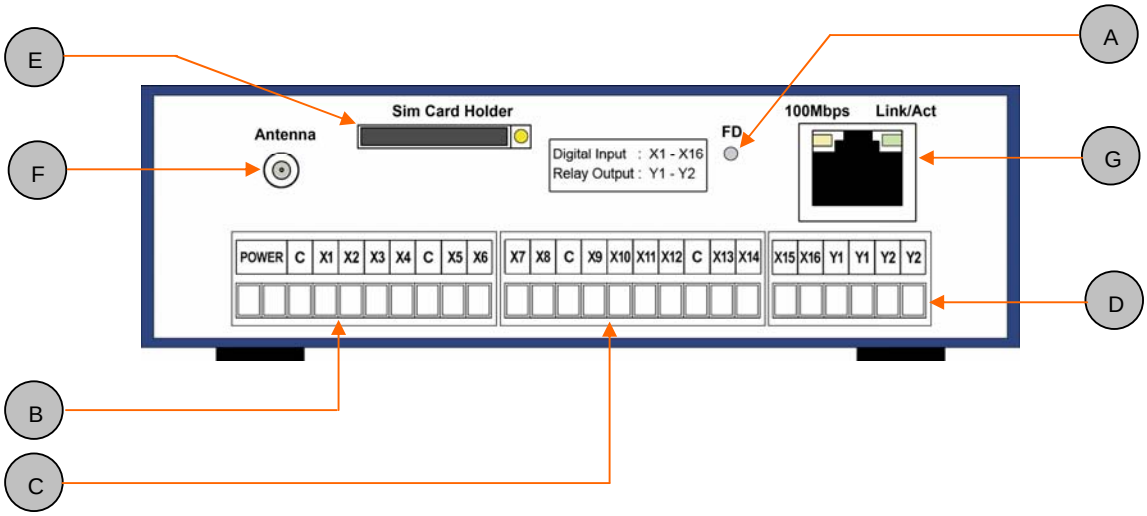


Figure 3.3 Back View (RMC2)

Label	Description	Comment
A	Reset Button	Reset device to Factory Default
B	10 way pluggable screw terminal	Power and IO connectors
C	10 way pluggable screw terminal	IO connectors
D	6 ways pluggable screw terminal	IO connectors
E	Sim Card Tray	Holder for Sim card
F	SMA connector	SMA-mount antenna
G	Ethernet port	Standard RJ-45 connector

Table 3.3

LED Indicators Description

Table 3.4 – 3.5 shows the description of the LED Indicators colour and its functions.

Name	Colour	Function
Power	Green	Indicate the unit is powered ON
	Green	Module is running in normal mode
Status	Flashing Orange	GSM in operation

Table 3.4 Front LED Indicators

Ethernet Port	Colour	Function
Link/Act (green)	On	Ethernet cable connected
	Blinking	Ethernet activity
10/100 (Orange)	Off	10 Mbits
	On	100 Mbits

Table 3.5 Ethernet Port

Telco Signal Strength LCD Indicators

After applying power to RMC and the amber Status LED will start to blink (0.5s on, 0.5s off). This rate of blinking indicates that RMC is searching for Telco network. When it succeeds logging onto a network, the Status LED will flash (0.2s on, 0.8s off).

The front panel LCD display, among other information, displays the Telco name and the signal strength.

Chapter 4: Hardware Installation

This section will guide you through the installation of your RMC. Just follow the instructions here and you will have your RMC installed very quickly.
Before starting installation, ensure that the unit is powered OFF and the power adapter plug disconnected from the POWER connectors of the unit

Step 1. Determine a suitable location for the RMC In selecting a location, remember that you will need to connect the power adapter, termination blocks and Ethernet cable, and have GSM signals. Follow carefully the instructions provided earlier in this manual on the safe use of this device.

Step 2. Insert a valid GSM mobile telephone SIM card into the SIM card socket slot on the front panel of the RMC.

- To insert the card, first eject the SIM card tray by pushing the yellow eject button. Do this using a small blunt tool. Example: paper clip or a Philips head screwdriver. (Figure 4.1)
- Place the SIM card on the tray and insert the tray into the holder. Ensure correct orientation. The SIM should be facing upwards
- Position it horizontally and slide it in with a gentle force. If you experience tightness or friction when attempting to insert the tray, do not force it in. Check that the SIM card is sitting firmly on the tray.
- Slide it in all the way until you feel it touching the end. About 1 mm of the SIM card tray will remain exposed to allow its removal.

Step 3. Attach the antenna provided in the package onto the antenna socket. If an external antenna is required, contact your distributor for more information on external high gain antenna.

Step 4. Wire the input/output connection between the equipment and RMC using the supplied pluggable screw terminal connectors provided.

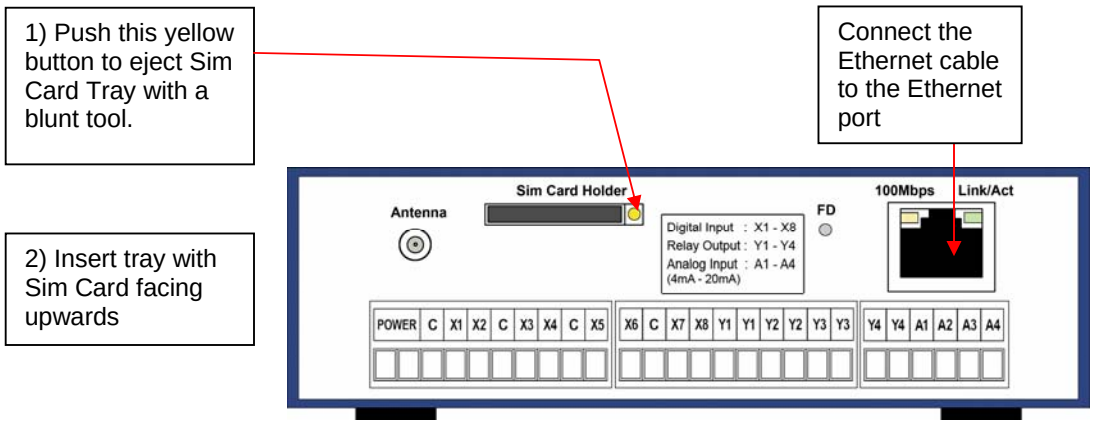

1) Push this yellow button to eject Sim Card Tray with a blunt tool.
2) Insert tray with Sim Card facing upwards
Connect the Ethernet cable to the Ethernet port
Sim Card Holder
Antenna
Digital Input : X1 - X8
Relay Output : Y1 - Y4
Analog Input : A1 - A4
(4mA - 20mA)
FD
100Mbps
Link/Act
POWER C X1 X2 C X3 X4 C X5
X6 C X7 X8 Y1 Y1 Y2 Y2 Y3 Y3
Y4 Y4 A1 A2 A3 A4

Figure 4.1 Eject Sim Card Tray

POWER SUPPLY

RMC accepts DC voltages from 12 – 30 Volts, non-polarized. **Do not** exceed the recommended voltage, exceeding which will damage the RMC. A 12VDC power adapter is supplied.

Ethernet

The RJ-45 connector connects RMC to the computer or network using Cat5 UTP cable. For connection to a single PC, use the cross Ethernet cable supplied. A hub or Ethernet switch is not necessary for direct RMC to PC interface. RMC can be used as a standalone system, or connected to the local area network (LAN). A LAN connection gives greater flexibility as well as enabling RMC to work with other networking devices.

Antenna

This SMA connector interfaces the external antenna to the internal GSM modem of RMC. Choose suitable antenna for your installation. The SMA-mount Antenna supplied as a standard accessory is the unity gain antenna. This antenna is suitable for most installation. If the location has low GSM signal strength, use high gain antenna or outdoor type. Check with your distributor for suitable antenna alternatives

Interfacing to Equipments

(Figure 4.2 - 4.3) shows how alarm inputs are wired to RMC. Up to 8 (RMC1) or 16 (RMC2) dry contacts and/or DC voltage can be monitored simultaneously. The contacts shown are either relay contact or switches from within the equipment. Cabling distance of up to 50 meters between the equipment and RMC is possible without causing false triggering. In noisy environment or longer cable lengths, shielded cables are recommended. Unused inputs can be left unconnected

Wiring Instructions: Example 1

(Figure 4.2) shows the power supply connection to RMC1. Power to RMC can be from 12-24 Volts. A 12VDC adapter is supplied as a standard accessory. The digital inputs shown are dry contacts type. The 4 outputs are relay types with contact ratings of 30V, 2 amps DC max. Also shown in this figure are four 4-20mA transmitters, 2-wire loop powered. Depending on the power requirement of the transmitter, a higher voltage may be needed. In this case, change the power supply to a higher voltage type, but not higher than 30 volts.

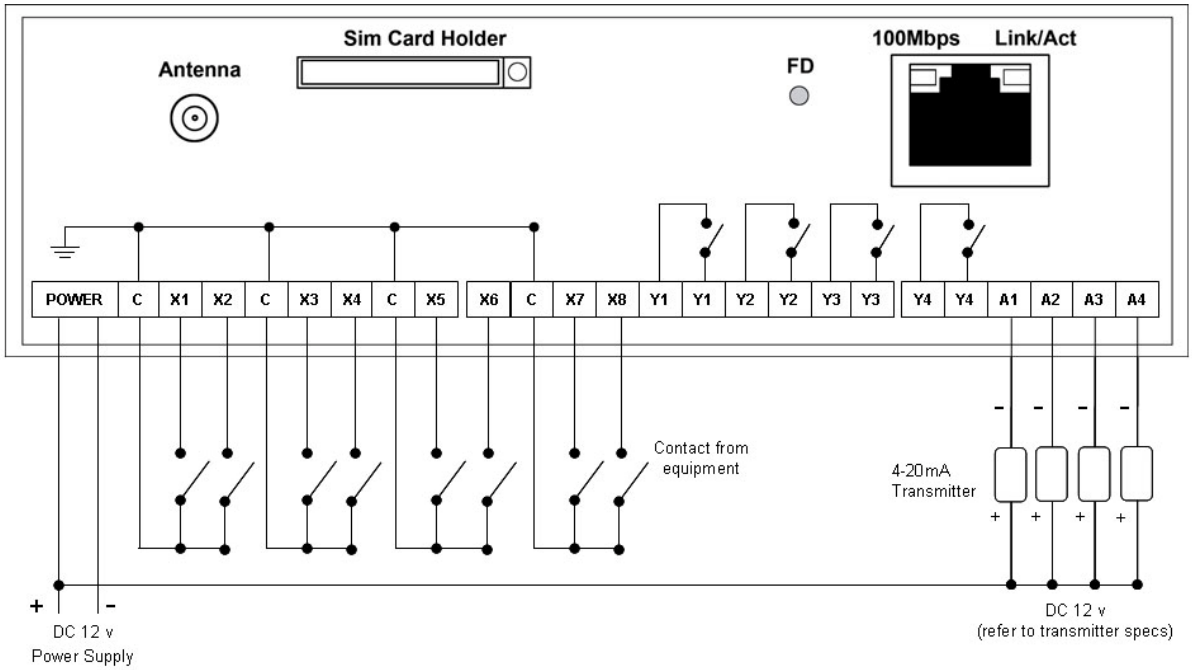


Figure 4.2 Wiring Diagram Example 1

Wiring Instructions: Example 2

(Figure 4.3) shows the wiring of RMC1 having a separate power supply for the analog inputs. In cases where the 4-20mA transmitters require an operating voltage of higher than 24 volts, this configuration is recommended. This figure also shows how to interface voltage source digital inputs. The example here shows that input X1, X2, X7, X8 are voltage source inputs. X3, X4, X5, X6 are dry contact inputs. Users can use dry contact or voltage source for any or all the inputs.

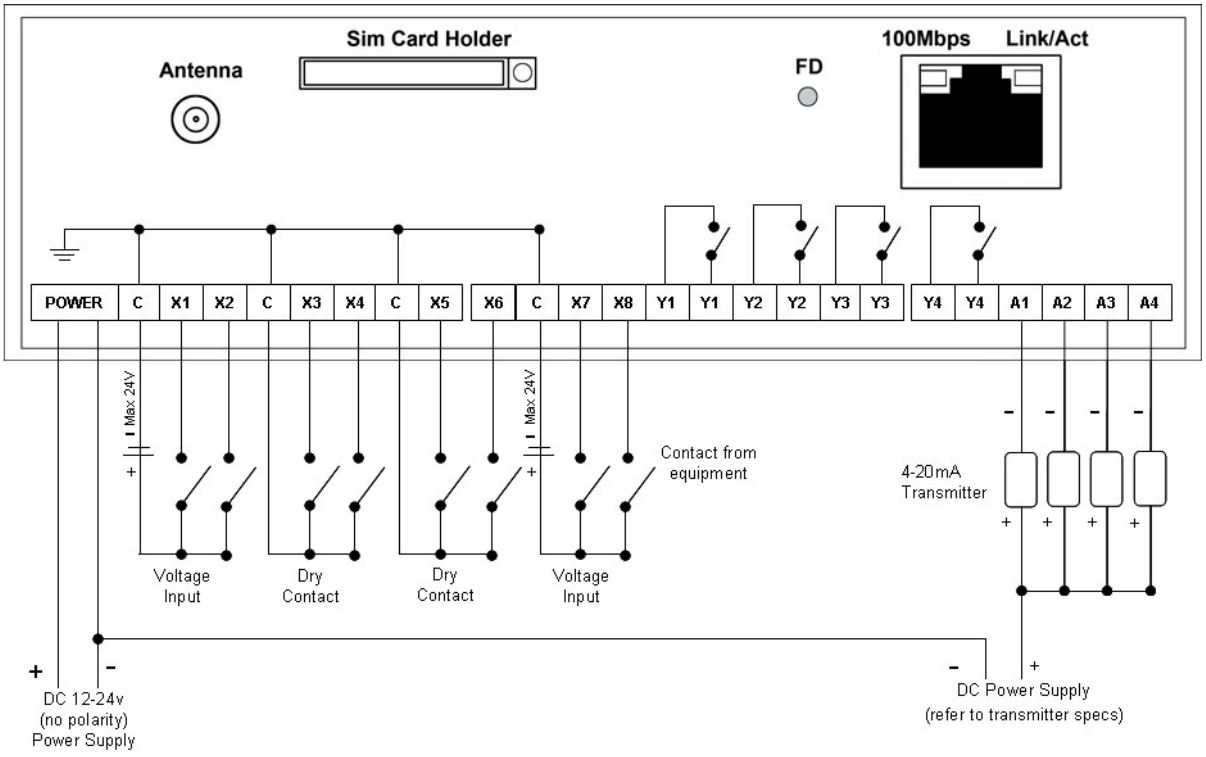


Figure 4.3 Wiring Diagram Example 2

Chapter 5: Software Configuration

Configuration of messages, phone groups etc are done via the Ethernet port.

Alarm Triggering

An alarm event happens when any one or more digital input changes state. RMC continuously monitor the input for these events. When an alarm event occurs, it picks up information from the configuration memory and performs the necessary SMS actions. Depending on the configuration, some or all the mobile phones specified will receive the SMS message.

The format of the message is **[Date/Time] [Device ID] [Input description] → [Status]**

Date/Time

The time of alarm event occurs. The real-time clock within RMC provides the time stamping information.

Device ID

The identity assigned by the user during software configuration.

Input Description

The user defines input description and status during software configuration. Each digital input will have its own unique input description name and status text.

Example of an SMS alarm message:

09/11/07 14:39> (North Tower) Power Supply in Basement 1 → Fault

Up to 40 mobile phones can be alerted to. This group of phone numbers is known as operation phones. Additionally, if a forward phone number is specified, it will receive the alarm notification as well.

Please refer to the following pages on how to configure RMC.

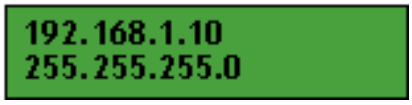
Configuring the Device

RMC is a web-based product. Using any web-browser on the PC, the user with administrative rights can access all the user configuration pages.

Power-Up

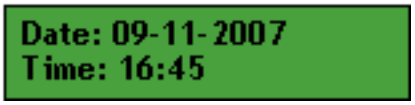
Ensure that the GSM SIM card is inserted properly before powering up the RMC. Upon power up, the RMC default Device ID and the firmware version will be displayed on the LCD panel:

Next, the LCD displays the IP address (default values are shown below):

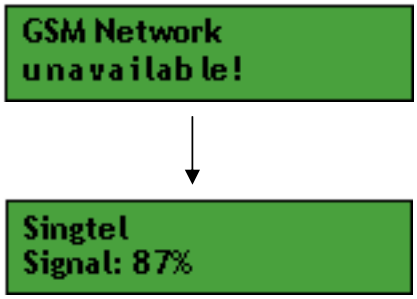


Next, the LCD displays the default Device ID:

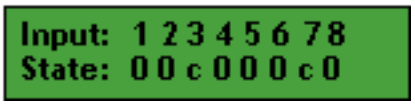
The date and time are then displayed. The date is formatted as dd-mm-yyyy:



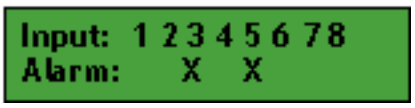
Upon successful detection of the SIM card and GSM network, the display shows the network service provider and the signal strength:



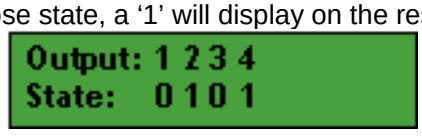
Next, the LCD displays the Digital Input State (depending on the DI state)
If connected equipment is in Open state, a '0' will display on the respective column.
If connected equipment is in Close state, a 'c' will display on the respective column.



Next, the LCD displays the Digital Input Alarm State (Normal state is blank)
If connected equipment is in alarm state, a 'X' display will appear on the respective column.



Next, the LCD displays the Relay Output State
If connected equipment is in Open state, a '0' will display on the respective column.
If connected equipment is in Close state, a '1' will display on the respective column.



Next, the LCD displays the first 2 Analog Input readings (default is disabled)

Next, the LCD displays next 2 Analog Input readings (default is disabled)

Standalone Configuration

In a standalone environment with one RMC directly connected to a standalone PC, requires a crossover Ethernet cable, which is supplied with the RMC unit.

In order for the PC and the RMC to 'see' each other, the PC must be manually set to a static IP address that is within the same subnet as the RMC. Given the default configuration of IP address *192.168.1.10* and 255.255.255.0 for the subnet mask, a suitable IP addresses for the PC would be *192.168.1.100* or any other IP address other then 1*92.168.1.10*.

Warning

Remember that you SHOULD NOT use the same IP address *192.168.1.10* for your PC and RMC and both PC and RMC need to be within the same subnet.
If you are unsure of how to set static IP address for your PC, please consult your PC operating system's documentation for details or Appendix A.

Network Environment Configuration

If the RMC is connected to a network with multiple PCs, be careful of the effects of any DHCP servers. RMC does not contain DCHP capabilities, and remember that for the PC and the RMC to 'see' each other, the IP addresses of the PC and RMC must be in the same subnet.
For a network with a DHCP server, you must allocate a fixed IP address for use by the RMC unit, and your RMC's IP address must be set to this address. If the RMC default settings are not suitable, connect RMC to a standalone PC to first change the settings to the IP address that you have allocated to it, and the required subnet mask (see the following sections on changing the default RMC IP settings) before connecting your RMC to your network. Consult your network system administrator if you have doubts.

When swapping a RMC connection between a network and a standalone PC, remember that a direct connection to a standalone PC requires a crossover Ethernet cable, which is supplied with the RMC unit.

Accessing RMC Web Pages

Once the IP address of RMC is known, the user can setup the device using the PC browser. The PC IP address must be in the same network range as the device.

To learn more about IP address and subnet mask, visit www.learntosubnet.com
Open the browser application on your PC. It can be Internet Explorer (version 6 and above), Firefox, Netscape, Opera or any other standard web browser.
Open your web browser, at the address bar, type in the IP address of RMC and press Enter, the Login Page is then loaded.

Chapter 6: Login Page

The login page will appear. Enter the User Name and Password on the text box. The default user name for administrator is admin. Password: *admin*. Guest user login user name is *guest*. Password: *guest*. Administrator user can change the password in the Administration page.

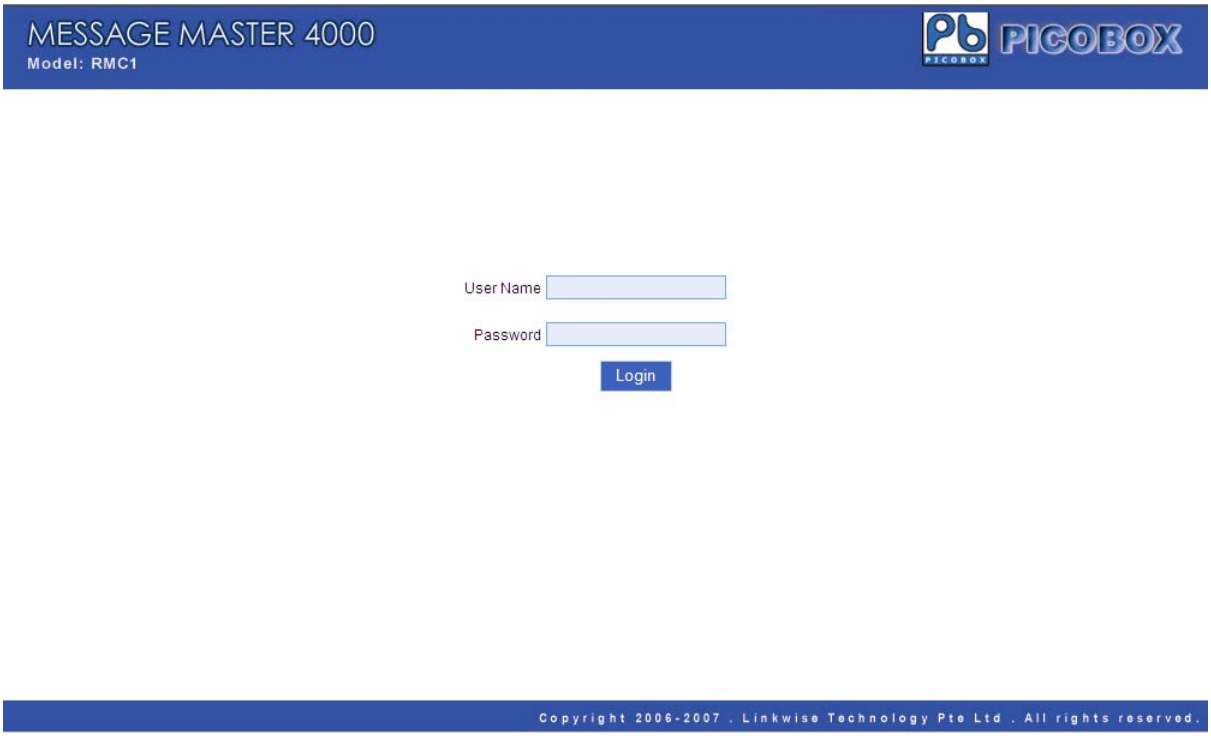


Figure 6.1: Login Page

Follow through the various pages to setup the parameters according to the user requirement.

Chapter 7: Status Page

Once the user successfully logs in, the status page appears. In a new un-configured unit, the status page shows all preset information about the input and output states.

Device ID :	MM4000	GSM Network :	SingTel	Login :	Administrator
IP Address :	192.168.1.10	Signal Strength :	74%	Date & Time :	09/11/2007 11:22:02

Input	Description	Status
X1	input X1	open
X2	input X2	open
X3	input X3	open
X4	input X4	open
X5	input X5	open
X6	input X6	open
X7	input X7	open
X8	input X8	open

Output	Description	Status	Control	
Y1	output Y1	OFF	ON	OFF
Y2	output Y2	OFF	ON	OFF
Y3	output Y3	OFF	ON	OFF
Y4	output Y4	OFF	ON	OFF

Analog	Description	Status	Value
A1	analog A1	Disabled	N/A
A2	analog A2	Disabled	N/A
A3	analog A3	Disabled	N/A
A4	analog A4	Disabled	N/A

Figure 7.1 Status Page

The left hand side of the page has a set of menu or navigation buttons. On the right side is the page of the currently selected choice. Click on any of the buttons will bring the respective pages out.

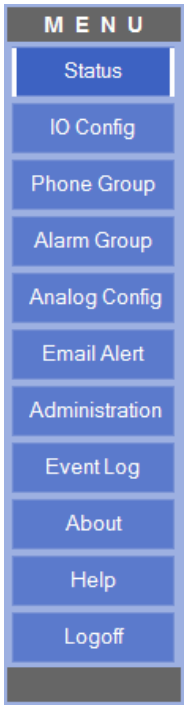


Figure 7.2 Menu or Navigation Buttons

The top of the page contains the device information like Device ID, IP address, GSM Network name, Signal Strength, Login user and Date/time.

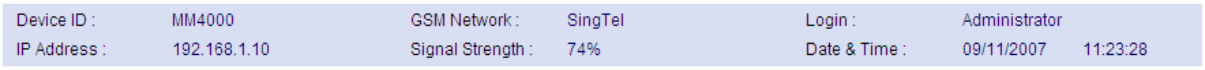

Device ID : MM4000 GSM Network : SingTel Login : Administrator
IP Address : 192.168.1.10 Signal Strength : 74% Date & Time : 09/11/2007 11:23:28

Figure 7.3 Device Information

In a configured unit, the status of the inputs, outputs and analog channels are displayed. Any change in the digital input, output and analog state are automatically updated live.

Description
These fields display what has been typed into the description field of digital input, analog input and relay output on the IO configuration pages.

Status
This field display the status of the equipments connected to RMC.

Input status:
This field will display what has been typed into the open / close fields of digital input (Input Config page).

Output status
This field will display either ON (the contact of the output is close) or OFF (contact of the output is opened)

Analog status
This field will display Normal when the reading is within the normal range. High (Alarm) when reading rises the preset High Alarm and Low (Alarm) when reading falls to the preset Low Alarm.

Control
The control section allows the administrator to set the Output state to ON (close the output contact) or OFF (open the output contact). This section will be disabled when login using Guest account.

Value
This field displays the analog values computed from the 4-20mA transmitter current.

Chapter 8: IO Config Page – Input

This page shows the template for defining input description as well as the status. Each input can assume 2 statuses, one is when the input contact is closed, and another when the input contact opens. The administrator is free to define the labels according to the device characteristics.

Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Response Time (0.2 - 30.0 sec)	Alarm State		
					None	Open	Close
X1	input X1	open	close	0.200	◉	○	○
X2	input X2	open	close	0.200	◉	○	○
X3	input X3	open	close	0.200	◉	○	○
X4	input X4	open	close	0.200	◉	○	○
X5	input X5	open	close	0.200	◉	○	○
X6	input X6	open	close	0.200	◉	○	○
X7	input X7	open	close	0.200	◉	○	○
X8	input X8	open	close	0.200	◉	○	○

Apply Cancel

Output	Y1	Y2	Y3	Y4
Description (Max 20 characters)	output Y1	output Y2	output Y3	output Y4

Apply Cancel

Figure 8.1 Input Configurations

Click on the IO Config button on the Menu buttons. The Digital Input and Relay Output configuration page will appear. This page and all other pages are designed for ease of use. Explanation is provided whenever necessary.

Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Response Time (0.2 - 30.0 sec)	Alarm State		
					None	Open	Close
X1	Power Supply in Basement 1	Normal	Fault	0.200	◉	○	○

Figure 8.2 Digital Input X1

Each digital alarm input has a set of variables for the user can enter. Following is the description of each field that the user can configure. RMC1 and RMC2 has 8 (X1-X8) and 16 (X1-X16) digital inputs respectively.

Description: This field is for the user to provide meaningful name for the point to be monitored. The description can be up to 40 characters long.

Open: This field describes the state of the input when the input voltage level is low (0-5V). This is also the contact open state. It can be of any wordings up to 15 characters long. Examples are: Alarm, Normal, Start, Stop, System reset, Fault, etc.

Close: This field describes the state of the input when the input voltage level is low (8-24V). This is also the contact close state. It can be of any wordings up to 15 characters long. Examples are: Alarm, Normal, Start, Stop, System reset, Fault etc.

Response Time: This defines the minimum time the input level must remain in order for the device to register a change in state. The default setting is 0.2 sec or 200 millisecond. This value can be set from between 0.2 sec to 30 sec.

Alarm state: Three possible settings can be selected – None, Open, Close. This setting defines what the alarm state is. The status page will show the state of the input, based on the state description configured.

Input Config: Example 1

Below is an example of defining the input state X1 as a non alarm input

Input Config:- Alarm state None

(Figure 8.3 - 8.5) shows Input X1 set to Alarm State None. If X1 is use as a status monitoring input, select the 'None' radio button. In this selection, no SMS is sent when the input changes states.

Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Response Time (0.2 - 30.0 sec)	Alarm State		
					None	Open	Close
X1	Pump in Basement	Start	Stop	0.200	◉	○	○

Figure 8.3 Digital Input X1 Alarm:-None

Status:- Alarm state None

Input	Description	Status
X1	Pump in Basement	Start

Figure 8.4 Status X1 Contact Open

Input	Description	Status
X1	Pump in Basement	Stop

Figure 8.5 Status X1 Contact Close

Input Config: Example 2

Below is an example of defining the input state X1 as a contact Close as alarm.

Input Config:- Alarm state Close

(Figure 8.6 - 8.8) shows Input X1 set to Alarm State Close. If X1 is set as contact close on alarm, select the 'Close' radio button. In this selection, Alarm SMS will be sent out when the input X1 changes from Open to Close state.

Input Config:- Alarm state Close

Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Response Time (0.2 - 30.0 sec)	Alarm State		
					None	Open	Close
X1	Power Supply in Basement 1	Normal	Fault	0.200	○	○	◉

Figure 8.6 Digital Input X1 Alarm:-Close

Status:- Alarm state Close

Input	Description	Status
X1	Power Supply in Basement 1	Normal

Figure 8.7 Status X1 Contact Open

Input	Description	Status
X1	Power Supply in Basement 1	Fault

Figure 8.8 Status X1 Contact Close

Input Config: - Completed Table

Figure 8.9 shows an example of a completed input configuration table of RMC1.

Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Response Time (0.2 - 30.0 sec)	Alarm State		
					None	Open	Close
X1	Power Supply in Basement 1	Normal	Fault	0.200	○	○	◉
X2	Water Detection System	Water Detected	Normal	0.200	○	◉	○
X3	Aircon in Server Room	Running	Fault	0.200	○	○	◉
X4	Poolside Emergency Button	Normal	Help	0.200	○	○	◉
X5	UPS in Server Room	Normal	Battery Mode	0.200	○	○	◉
X6	Fire Alarm Panel in Security Room	Normal	Alarm	0.200	○	○	◉
X7	Booster Pump in Pump Room	Running	Failed	0.200	○	○	◉
X8	Main Door in Reception	Door Opened	Door Closed	0.200	◉	○	○
						Apply	Cancel

Figure 8.9 Digital Inputs X1-X8

Chapter 9: IO Config Page – Output

RMC has 4 (RMC1) or 2 (RMC2) relay outputs. These outputs can be turn on, off, or pulse remotely via SMS commands. It can also be controlled from locally in or remotely from the web page access (Status page).

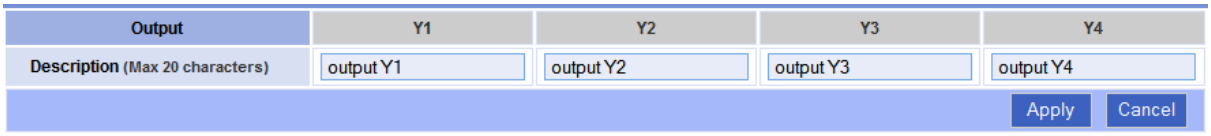


Figure 9.1 Output Config

The 4 relay outputs are Y1-Y4. The user can create a description for each input of up to 20 characters long. The four output description should not be identical. Each Relay output has its own sets of settings.

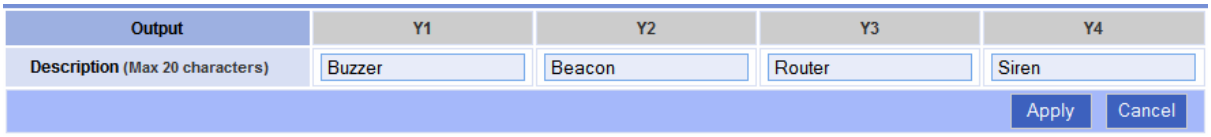


Figure 9.2 Output Config Example

Remote Control Output using SMS

This feature enables user to switch any one or more of the 4 outputs on (relay contacts closed), off (contacts open) or pulse by sending the appropriate *Action SMS* message to the RMC unit. RMC is **non-case sensitive** to the received Action SMS messages. After performing the required action, RMC replies to the sender with the corresponding *Reply SMS* message.
For example, to switch Relay 1 on (i.e. to close the contacts), send an SMS "***#on Buzzer***" message to RMC. Upon closing the Relay 1 contacts, RMC will reply with the SMS message "***09/11/2007 15:05 (RMC) Buzzer → ON***". To prevent ambiguities, each Action SMS message must be unique. Remember that the messages are not case sensitive.

Another way to control output relay without going through SMS is by clicking on 'ON' or 'OFF' from the output control section in the Status page.

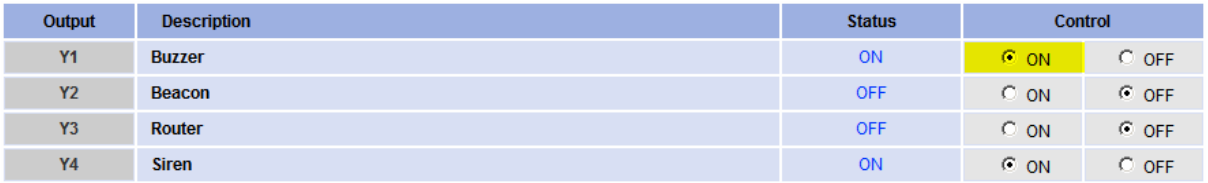


Figure 9.3 Local Control Output Relay

Chapter 10: Phone Group Page

This page shows the recipients mobile phone numbers, organised into 8 (A-H) Operational groups, 5 user in Escalation Group A, 5 user in Escalation Group B, 3 user in Authorized group & 1 user in Forward group. In operational group there are 5 users in each group. Click *Apply* for any changes to take effect. International dialling codes can be used. Example: +65912345678.

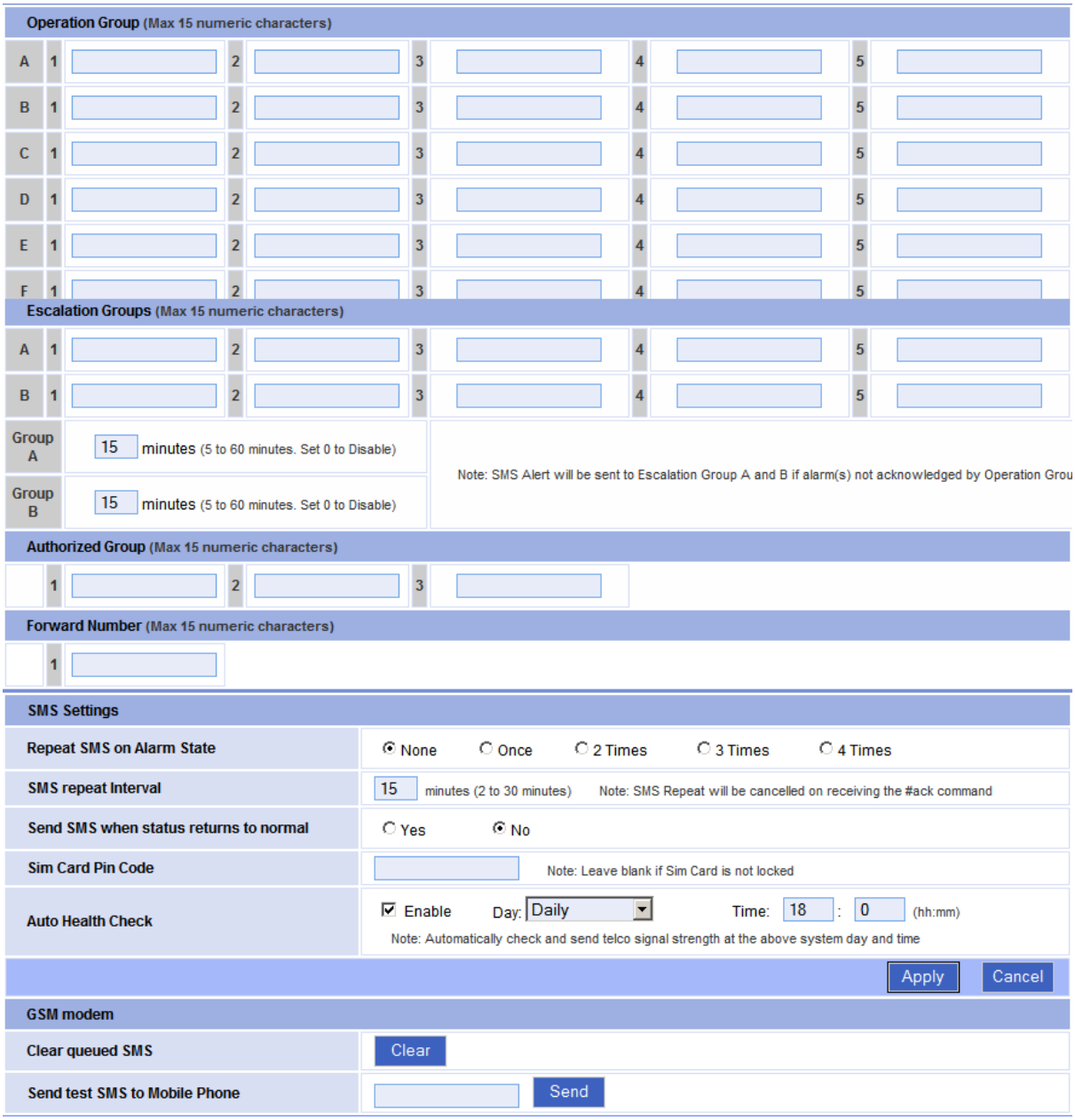
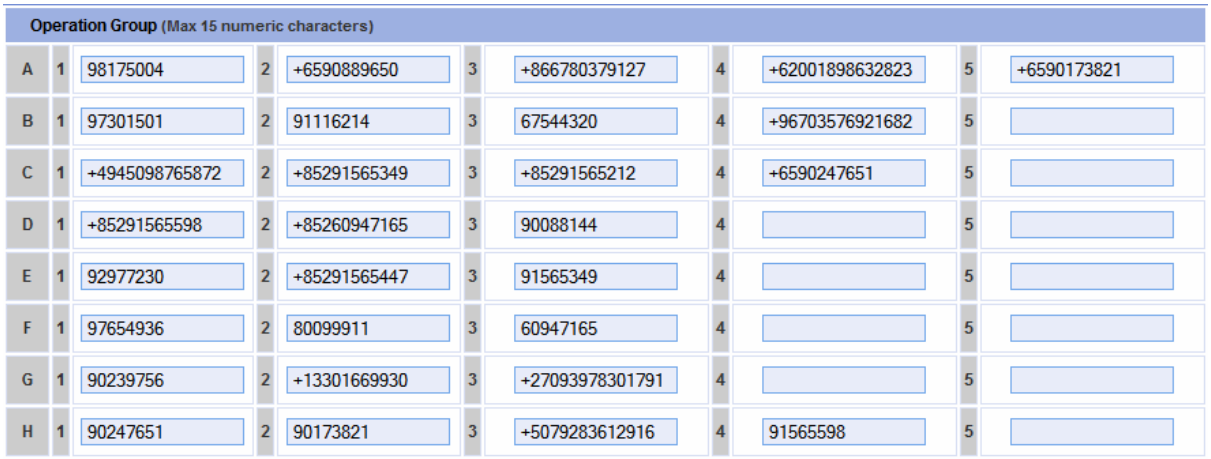

Operation Group (Max 15 numeric characters)
A 1 2 3 4 5
B 1 2 3 4 5
C 1 2 3 4 5
D 1 2 3 4 5
E 1 2 3 4 5
F 1 2 3 4 5
Escalation Groups (Max 15 numeric characters)
A 1 2 3 4 5
B 1 2 3 4 5
Group A 15 minutes (5 to 60 minutes. Set 0 to Disable)
Group B 15 minutes (5 to 60 minutes. Set 0 to Disable)
Note: SMS Alert will be sent to Escalation Group A and B if alarm(s) not acknowledged by Operation Grou
Authorized Group (Max 15 numeric characters)
1 2 3
Forward Number (Max 15 numeric characters)
1
SMS Settings
Repeat SMS on Alarm State
None Once 2 Times 3 Times 4 Times
SMS repeat Interval
15 minutes (2 to 30 minutes) Note: SMS Repeat will be cancelled on receiving the #ack command
Send SMS when status returns to normal
Yes No
Sim Card Pin Code
Note: Leave blank if Sim Card is not locked
Auto Health Check
Enable Day: Daily Time: 18 : 0 (hh:mm)
Note: Automatically check and send telco signal strength at the above system day and time
Apply Cancel
GSM modem
Clear queued SMS
Clear
Send test SMS to Mobile Phone
Send

Figure 10.1 Phone Group

Operation Group

These groups of users are those that will receive alarm SMS when one or more digital inputs are activated (open → close, close → open). Analog Input are activated (normal → high, high → normal, normal → low, low → normal). Up to 40 mobile phone numbers can be assigned to this groups. Phone numbers of up to 14 numeric characters and (+) are valid formats. Example 912345678, +65912345678.

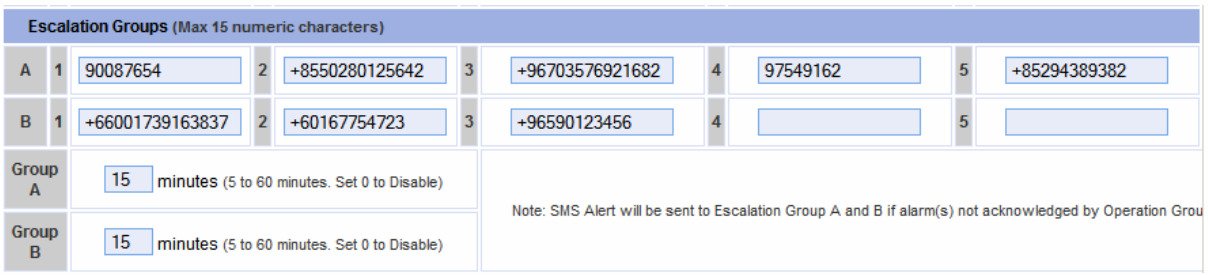


Operation Group (Max 15 numeric characters)										
A	1	98175004	2	+6590889650	3	+866780379127	4	+62001898632823	5	+6590173821
B	1	97301501	2	91116214	3	67544320	4	+96703576921682	5	
C	1	+4945098765872	2	+85291565349	3	+85291565212	4	+6590247651	5	
D	1	+85291565598	2	+85260947165	3	90088144	4		5	
E	1	92977230	2	+85291565447	3	91565349	4		5	
F	1	97654936	2	80099911	3	60947165	4		5	
G	1	90239756	2	+13301669930	3	+27093978301791	4		5	
H	1	90247651	2	90173821	3	+5079283612916	4	91565598	5	

Figure 10.2 Operation Group

Escalation Group

These groups of users are those that will receive alarm SMS when acknowledgement command (#ack) is not received from the respective groups, stating that alarm messages had not been acknowledged after the expiry of escalation delay.



Escalation Groups (Max 15 numeric characters)										
A	1	90087654	2	+8550280125642	3	+96703576921682	4	97549162	5	+85294389382
B	1	+66001739163837	2	+60167754723	3	+96590123456	4		5	
Group A	15 minutes (5 to 60 minutes. Set 0 to Disable)					Note: SMS Alert will be sent to Escalation Group A and B if alarm(s) not acknowledged by Operation Grou				
Group B	15 minutes (5 to 60 minutes. Set 0 to Disable)									

Figure 10.3 Escalation Group

Group A

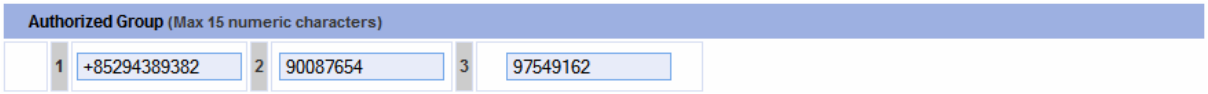
If set, SMS “No Acknowledgement Received” Alert will be sent to *Escalation Group A* if alarm(s) is not acknowledged by *Operation Group*. Trigger time starts from 1st SMS alert to *Operation Group*.

Group B

If set, SMS “No Acknowledgement Received” Alert will be sent to *Escalation Group B* if alarm(s) is not acknowledged by *Operation Group*, *Forward*, or *Escalation Group A*. Trigger time starts from 1st SMS alert to *Escalation Group A*.

Authorized Group

This group can perform remote query and changing of Operation, Forward, and Authorizer mobile phone numbers stored in the unit’s memory using SMS. This group of users will not receive any alarm SMS when digital inputs are activated.



Authorized Group (Max 15 numeric characters)						
	1	+85294389382	2	90087654	3	97549162

Figure 10.4 Authorized Group

Forward Number

This number (if assigned) will receive alarm SMS like the operation numbers. Any incoming SMS to RMC will also be forwarded to this number as well. This is a very useful feature where an organization wishes to have a central logging of all activities (alarms, in-out SMS) of RMC. When many RMC are deployed in the field, the usefulness becomes more evident.
All incoming SMS either correct or invalid commands as well as any other SMS messages from any mobile phones will be forwarded to this number for logging. This function is in effect serves as a remote event logger.

Figure 10.5 Forward Number

WARNING

Never set the forward mobile phone number to be the same as the SIM card number in RMC. This will cause the device to send no-ending SMS to itself.

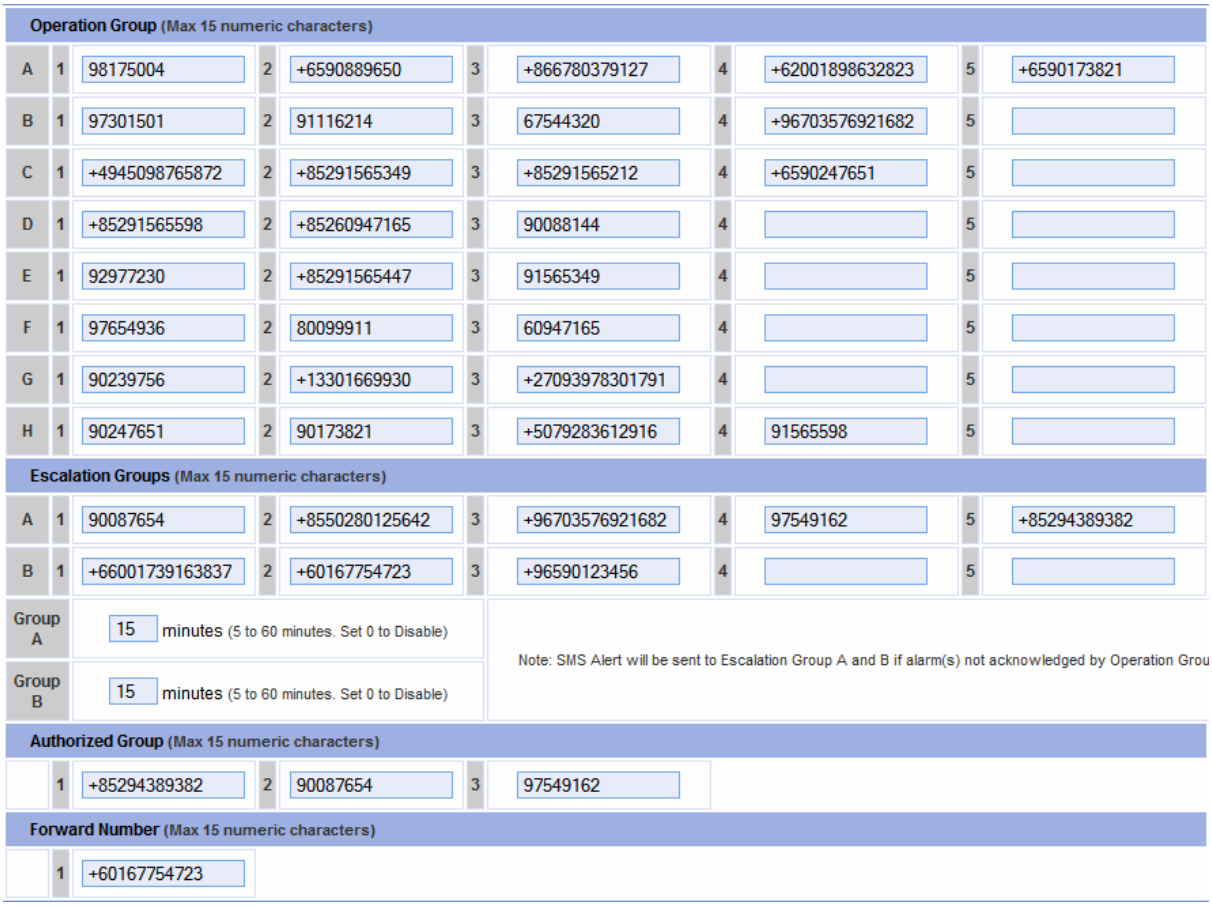


Figure 10.6 Completed Table

SMS Settings
This feature, when enabled will send the alarm SMS repeatedly up to 4 times to the operation and forward mobile phones. The repeat interval can be set between 2-30 minutes.

Repeat SMS on Alarm State
If set, when an alarm is triggered, the SMS will be sent repeatedly according to the number of times specified, to the operation and forward group.

SMS Repeat Interval
SMS repeat duration (2- 30mins).

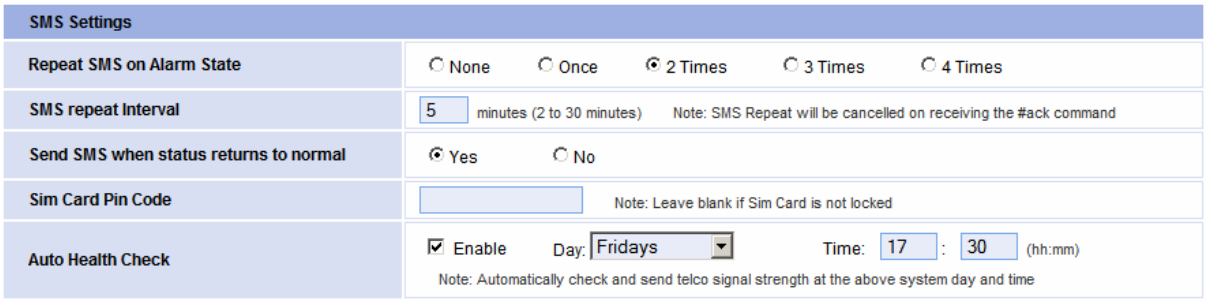


Figure 10.7 SMS Settings

To cancel repeat sending, any mobile phone from the operation or forward must acknowledge to RMC by replying the acknowledge command (**#ack**). This command is non-case sensitive. **#ack, #ACK, #Ack** are valid strings. RMC upon receipt of the acknowledge command stop sending further SMS to this alarm.

After the alarm or alarms is acknowledged, new alarms triggered will be sent and repeated until the next #ACK command is received by RMC. Set to None if no repeat is required.

Send SMS when status returns to normal
If *Yes* is selected, SMS will be sent once when status of Digital Input or Analog Input changes from Alarm to Normal state. There is no repeat for this 'Normal' SMS. If *No* is selected, SMS will not be sent out when status of Digital Input or Analog Input changes from Alarm to Normal state.

SMS Repeat and Escalation A and B Example:

SMS Repeat: 4 Times (maximum)
SMS Repeat Interval: 5 minutes
Escalation Group A: 15 minutes
Escalation Group B: 30 minutes

Assuming no acknowledgment received by RMC from respective groups.
Alarm Trigger Time: 10:00pm

Time	Operation	Forward	Escalation A	Escalation B
10:00pm	Yes	Yes		
10:05pm	Yes	Yes		
10:10pm	Yes	Yes		
10:15pm	Yes	Yes	Yes	
10:20pm	Yes	Yes		
10:25pm				
10:30pm				
10:35pm				
10:40pm				
10:45pm				Yes

Table 10.4 SMS Repeat and Escalation A and B example

SIM Card Pin Code

The user can opt to lock the SIM card to prevent unauthorized use of the SIM card. To enable to pin lock feature, place the SIM card on any mobile phone and use the phone function to lock the SIM card. (Refer to the phone manufacturer user manual for instruction). On the Sim Card Pin Code field, supply the same lock code as you have set using the mobile phone. Place the SIM card back to RMC. (Refer to the section on SIM card insertion for detail)

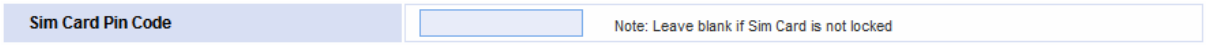


Figure 10.8 SMS Card Pin Lock

Auto Health Check

The “Auto Health Check” feature automatically report to recipients the health of RMC over SMS.: If “enable” is check, RMC will sent a SMS message on the preset Day and Time. If the auto health check is not enabled, users still can perform manual health check by sending *?syscheck* to RMC via sms.

If RMC is switched on, or working normally, it will reply to the querying mobile phone with

[*Date / Time*]> [*Device ID*]
Auto Health Check:
[*Telco name*] -> [*Signal level*]
IP: [*IP Address*]
System Check OK

Example

09/11/2007 14:39> (RMC)
Auto Health Check:
SingTel-G9 -> **90%**
IP:192.168.1.10
System Check OK

Forward mobile number, if specified will receive 2 messages from this action

1) ?syscheck from the querying mobile phone
2) Reply from RMC to the querying mobile phone

Clear queued SMS

If there is a situation of multiple alarms, the alarms are stored in memory queue for the GSM modem to perform SMS'ing of messages. If during the process of sending SMS, a power failure occurs, the queue information remains in memory. When power is restored, RMC will resume the sending of SMS. The Administrator can click on the Clear button to delete the queued SMS alarms.

Send test SMS to Mobile Phone

To test, type in the Mobile Phone number in the field and click *Send* to send out a test SMS.

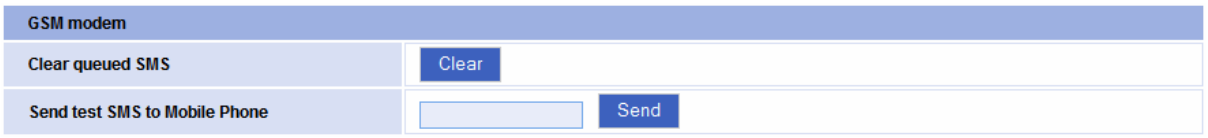


Figure 10.9 Send test SMS

Chapter 11: Alarm Group Page

This page is used for selecting the group of users to be notified when any of the 8 Digital Inputs switches close or open. Four Analog Inputs can monitor industrial standards 4-20mA transmitter parameters like, temperatures, humidity, pressures, etc. Each low or high alarm can notify up to 8 phone groups.

Input	Description	Enable	Phone Group							
			A	B	C	D	E	F	G	H
1	Power Supply in Basement 1	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Water Detection System	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Aircon in Server Room	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Poolside Emergency Button	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	UPS in Server Room	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	Fire Alarm Panel in Security Room	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	Booster Pump in Pump Room	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	Main Door in Reception	☐	☐	☐	☐	☐	☐	☐	☐	☐
Enable alarm conditions in group		☐	☐	☐	☐	☐	☐	☐	☐	☐
Enable alarm conditions		☐ Check All								

Analog	Description	Enable	Phone Group							
			A	B	C	D	E	F	G	H
1	analog A1	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	analog A2	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	analog A3	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	analog A4	☐	☐	☐	☐	☐	☐	☐	☐	☐
Enable alarm conditions in group		☐	☐	☐	☐	☐	☐	☐	☐	☐
Enable alarm conditions		☐ Check All								

Apply Cancel

Sound internal Buzzer on Alarm State	☐ Enable	Duration 10 sec	Set
Trigger Output 4 on Alarm State	☐ Enable	Duration 10 sec	Set

Figure 11.1 Alarm Group

Alarm Grouping – Digital Input

The **Enable** checkbox enables the respective Digital Input alarms i.e. selects which alarms are active.
In this way you can define alarm configurations beforehand and only enable the ones you require to be active at any particular time.

Enable alarm conditions in group
Check this box to select the whole group within the column.

Enable alarm conditions
Check this box to select every checkboxes within the Digital Input table.

The example below, Phone Group A has the whole column check boxes ticked, indicating Group A members are monitoring all the equipments X1 – X8. Whenever there is any alarm from any equipment, Group A will receive the SMS Alert.
As for Phone Group B, its has the first four checkboxes ticked, indicating Group B members are monitoring equipment from X1-X4. As such, whenever there is any alarm from X1-X4 equipment, Group B will receive the SMS Alert, but will not receive any SMS Alert if there is any trigger from X5-X8 equipment.

Input	Description	Enable	Phone Group							
			A	B	C	D	E	F	G	H
1	Power Supply in Basement 1	☑	☑	☑	☐	☑	☐	☐	☐	☐
2	Water Detection System	☑	☑	☑	☐	☑	☐	☐	☐	☐
3	Aircon in Server Room	☑	☑	☑	☐	☐	☑	☐	☐	☐
4	Poolside Emergency Button	☑	☑	☑	☐	☐	☑	☐	☐	☐
5	UPS in Server Room	☑	☑	☑	☑	☐	☐	☑	☐	☐
6	Fire Alarm Panel in Security Room	☑	☑	☐	☑	☐	☐	☑	☐	☐
7	Booster Pump in Pump Room	☑	☑	☐	☑	☐	☐	☐	☑	☐
8	Main Door in Reception	☑	☑	☐	☑	☐	☐	☐	☑	☐
Enable alarm conditions in group		☑	☑	☐	☐	☐	☐	☐	☐	☐
Enable alarm conditions		☐ Check All								

Figure 11.2 Alarm Group - Digital Input

Alarm Grouping – Analog Input

The **Enable** checkbox enables the respective Analog Input alarm, i.e. selects which alarms are active.
In this way you can define alarm configurations beforehand and only enable the ones you require to be active at any particular time.

Enable alarm conditions in group
Check this box to select the whole group within the column.

Enable alarm conditions
Check this box to select every checkboxes within the Analog Input table.

The example below shows for Probe 1 and 2, Groups A and B will be notified whenever the analog values crosses the low or high alarm limits.
Groups A and C will monitor Probe 3 and 4 and be notified whenever the analog values crosses the low or high alarm limits.

Analog	Description	Enable	Phone Group							
			A	B	C	D	E	F	G	H
1	analog A1	☑	☑	☑	☐	☐	☐	☐	☐	☐
2	analog A2	☑	☑	☑	☐	☐	☐	☐	☐	☐
3	analog A3	☑	☑	☐	☑	☐	☐	☐	☐	☐
4	analog A4	☑	☑	☐	☑	☐	☐	☐	☐	☐
Enable alarm conditions in group		☑	☑	☐	☐	☐	☐	☐	☐	☐
Enable alarm conditions		☐ Check All								

Figure 11.3 Alarm Group - Analog Input (RMC1)

Sound Internal Buzzer

This feature will sound internal buzzer on alarm state. Whenever Digital Input changes from Normal to Alarm state or when Analog Input hits the alarm preset value. Select the buzzer duration from the dropdown box. Click *Set* for any changes to take effect.

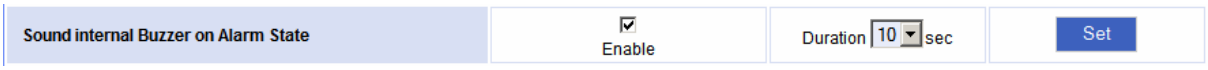


Figure 11.4 Sounds Internal Buzzer

Trigger Output 4 (RMC1) / Output 2 (RMC2)

This feature will trigger and close the contact of Relay Output Y4 (RMC1) or Relay Output Y2 (RMC2) on alarm state. Whenever Digital Input changes from Normal to Alarm state or when Analog Input hits the alarm preset value. Select the closing of the contact duration from the dropdown box or select '*ON*' to leave the contact permanently closed till the alarm returns to normal state. Click *Set* for any changes to take effect. Figure 11.6 shows an example of connecting external alarm (Beacon) to Relay Output Y4.

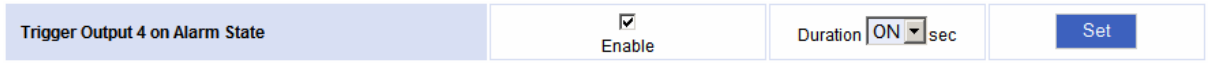


Figure 11.5 Trigger Output Relay Y4

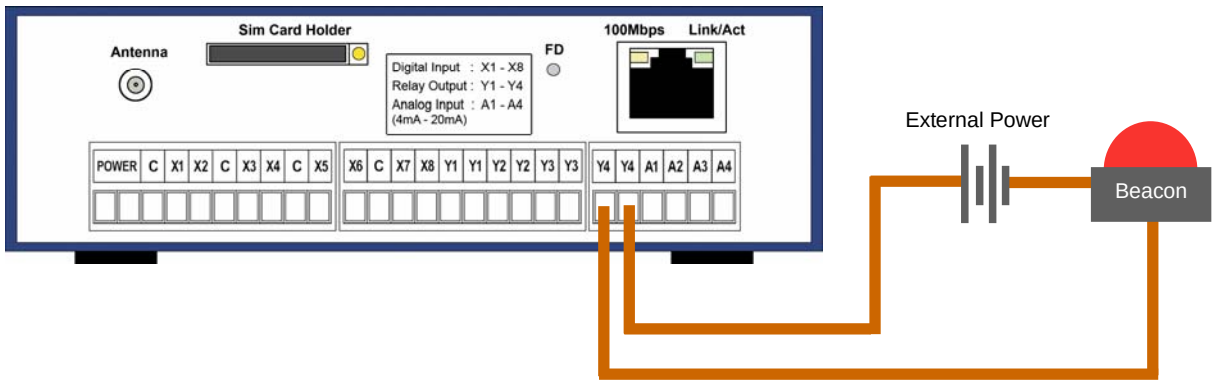

Sim Card Holder
Antenna
Digital Input : X1 - X8
Relay Output : Y1 - Y4
Analog Input : A1 - A4
(4mA - 20mA)
FD
100Mbps
Link/Act
POWER C X1 X2 C X3 X4 C X5
X6 C X7 X8 Y1 Y1 Y2 Y2 Y3 Y3
Y4 Y4 A1 A2 A3 A4
External Power
Beacon

Figure 11.6 Trigger External Alarm (RMC1)

Chapter 12: Analog Config Page

This page shows four channels of 4-20mA analog input interfaces to any industrial standards transmitter. Any such transmitters can be used with RMC1 to monitor temperature, humidity, pressure, current, voltage, power, etc. Refer to the transmitter manufacture specification for help in inputting the fields in this page. RMC2 does not have analog input features.

Analog Input	A1	A2	A3	A4
Enable	☐	☐	☐	☐
Description (Max 20 characters)	analog A1	analog A2	analog A3	analog A4
Unit of Measure				
Engineering value at 4mA	0.0	0.0	0.0	0.0
Engineering value at 20mA	0.0	0.0	0.0	0.0
Hysteresis in Engineering unit	0.0	0.0	0.0	0.0
Offset Value	0.0	0.0	0.0	0.0
Low Alarm	0.0 ☐	0.0 ☐	0.0 ☐	0.0 ☐
High Alarm	0.0 ☐	0.0 ☐	0.0 ☐	0.0 ☐
Alarm Delay Time (0 - 60secs)	0.2 sec	0.2 sec	0.2 sec	0.2 sec
				Apply Cancel

Figure 12.1 Analog Input Config

Example of Analog Config:- Temperature

Analog Input	A1
Enable	☑
Description (Max 20 characters)	Server Room Temp
Unit of Measure	degree
Engineering value at 4mA	0.0
Engineering value at 20mA	100.0
Hysteresis in Engineering unit	4.0
Offset Value	0.0
Low Alarm	16.0 ☑
High Alarm	30.0 ☑
Alarm Delay Time (0 - 60secs)	0.2 sec

Figure 12.2 Example of Analog Input A1: Temperature

Enable checkbox
Enable or disable Analog Input A1 Alarm. To disable it, uncheck the checkbox.

Unit
Input the unit for the analog input value.

Engineering Value at 4mA – 20mA
Refer to the transmitter manufacturer specification.

Hysteresis
Set the minimum change required to revert from High/Low alarm state to Normal state.

Low Alarm
Set the minimum analog input Low Alarm value.

Low Alarm checkbox
Check this box to enable Low Alarm. SMS will be sent out when the Analog input A1 changes from Normal to Low state.

High Alarm
Set the maximum analog input High Alarm value.

High Alarm checkbox
Check this box to enable High Alarm. SMS will be sent out when the Analog input A1 changes from Normal to High state.

Analog Delay Time
This defines the minimum time the Analog input level must remain in order for the device to register a change in state. The default setting is 0.2 sec or 200 milliseconds. This value can be set from between 0.2 sec to 60 sec.

Tips: Set the **Hysteresis** higher to prevent the transmitter from flickering between two states.
For example, if you set the **Hysteresis** at 3 degrees, **High Alarm** is set to 30 degrees and the room temperature varies between 27 and 30 you could be faced with a very large number of SMS and events logged.
In the example below the **Hysteresis** is set to 4 then the transmitter would have to drop from 30 to 26 before the status would change from **High (Alarm)** back to normal.

Warning and Error Messages
If the user input any values that are out of range, RMC will prompt an error. The user must re-enter the correct value.

Example of Analog Config:- Temperature High(Alarm)

Normal Range

Analog	Description	Status	Value
A1	Server Room Temp	Normal	23.0 degree

Figure 12.3 Analog Input A1

High Alarm

(Figure 12.4- 12.5) shows Analog Input A1 in High Temperature Stage. When temperature rises to *30.0* degree, SMS will be send out stating Server Room Temp→ High (Alarm). When temperature falls to *26.0* degree, SMS will be sent out stating Server Room Temp→ Normal.

Analog	Description	Status	Value
A1	Server Room1 Temp	High (Alarm)	30.0 degree

Figure 12.4 Status Analog Input A1 High Alarm

Analog	Description	Status	Value
A1	Server Room Temp	Normal	26.0 degree

Figure 12.5 Status Analog Input A1 Normal State

Low Alarm

(Figure 12.6- 12.7) shows Analog Input A1 in Low Temperature Stage. When temperature falls to *16.0* degree, SMS will be sent out stating Server Room Temp→ Low (Alarm). When temperature rises to *20.0* degree, SMS will be sent out stating Server Room Temp→ Normal.

Analog	Description	Status	Value
A1	Server Room Temp	Low (Alarm)	16.0 degree

Figure 12.6 Status Analog Input A1 Low Alarm

Analog	Description	Status	Value
A1	Server Room Temp	Normal	20.0 degree

Figure 12.7 Status Analog Input A1 Normal State

Status: Completed Input / Output and Analog Input Example

This page shows the example of a completed input/output configuration Status Page. Once the administrator configured successfully, the screen on the right side of the browser will display the updated table, showing the description the devices or equipment and the present status. The devices or equipment are those that are interfaced to RMC termination block. Relay outputs and Analog input are also shown on this same screen.

Input	Description	Status	
X1	Power Supply in Basement 1	Normal	
X2	Water Detection System	Water Detected	
X3	Aircon in Server Room	Running	
X4	Poolside Emergency Button	Normal	
X5	UPS in Server Room	Normal	
X6	Fire Alarm Panel in Security Room	Normal	
X7	Booster Pump in Pump Room	Running	
X8	Main Door in Reception	Door Opened	
Output	**Description**	**Status**	**Control**
Y1	Buzzer	OFF	○ ON ◉ OFF
Y2	Beacon	ON	◉ ON ○ OFF
Y3	Router	OFF	○ ON ◉ OFF
Y4	Siren	ON	◉ ON ○ OFF
Analog	**Description**	**Status**	**Value**
A1	Server Room1 Temp	Normal	21.7 degree
A2	Server Rm1 Humidity	Normal	54.9 %
A3	Server Room2 Temp	Normal	22.1 degree
A4	Server Rm2 Humidity	Normal	54.9 %

Figure 12.8 Status Page example

Sensor status colour indicator

The colours **Red** and **Green** indicate at a glance the status, red is alarm state and green is in the normal state. **Black** indicates user had defined the equipment as non-critical.

Chapter 13: Email Alert Page

This feature enables RMC to send email alert. If enabled, upon any alarm trigger the message will be send to the list of email recipient. This is an additional alert for those who are always on the computer.

Figure 13.1 Email Alert Page

RMC supports SMTP server types:
• SMTP with authentication
• SMTP without authentication

The user must configure a valid SMTP server in order to send email notifications.
SMTP servers often check only the sender's host domain name of the email address for validity. Consequently, the email address set for the device can use an arbitrary username with a registered hostname (i.e. *rmc@hotmail.com* or *mm4k@linkwisetech.com)*.

SMTP with authentication

Check the Enable checkbox under SMTP Authentication to enable this feature.
The SMTP user name and SMTP user password are required when SMTP with authentication is required by your mail server.

SMTP without authentication

Uncheck the Enable checkbox under SMTP Authentication to disable this feature.
Leave the SMTP user name and SMTP user password blank if SMTP with authentication is not required by your mail server.

Figure 13.2 Email Alert Example

Email Alert

To set this up, check the Email Alert checkbox to enable Email Notification.

SMTP Server

Enter the host domain of your SMTP server in the SMTP Server field. (eg. smtp8.cybersite.com.sg)

Email Subject

Enter the email subject for the Email notification. (eg. “Critical Alarm Alert”)

Mail Recipient

Allows up to 5 email addresses to be designated for notification if input goes into alarm or returns to normal. If more email addresses recipients are required, you may group the email addresses from your mail server and enter the group email address in the Mail Recipient. (eg hr@linkwisetech.com). Please check with your System Administrator on the email group settings. Email notification will be sent when input alarms and when input returns to normal.

Chapter 14: Administration Page

This page gives you administrator control over RMC.

Figure 14.1 Admin Page

Change Device ID

This entry is for the Administrator to assign a unique name to RMC. It accepts up to 15 alphanumeric characters. The Device name will be SMS along with other information when an alarm is triggered. It is advisable to change the Device ID according to the location or site name, as the user will still know where the SMS alert is from which location even if there is a change in the device Sim card number.

Figure 14.2 Device ID

Change Date & Time

Enter the new date and time in this field. The date and time should use the following format: date/month/year (*dd/mm/yyyy*) and hour:minute:second (*hh:mm:ss*). For setting the real-time clock of RMC. Date and time information are also sent to mobile phone(s) when an alarm is triggered.

Figure 14.3 Date & Time

NTP server

To enable time synchronize with NTP server. Set the Host or IP address of the NTP server to be used. Select the GMT from the drop down box and check the Enable checkbox. The NTP will synchronize the time with the server that has less number of the stratum.

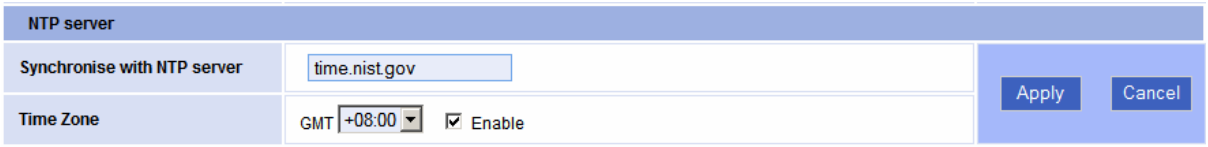


Figure 14.4 NTP Server

Change Administrator Password

This feature enables administrator to change the username and password for the Administrator account. Ensure that the setting is recorded and kept in a safe place. Entering wrong username and password will prevent access to RMC menu. Contact your distributor if this happens. This login account for a user does have full administrator privileges. The default username and password for this user account is “admin”.

To change the Administrator password, inside this field under **Current Password**, type the current administrator password, followed by a new password in both **New Password** and **Verify Password** fields, then click on the *Apply* button.

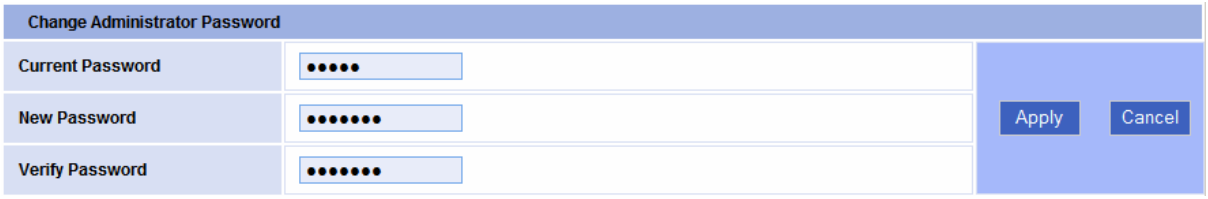


Figure 14.5 Change Administrator Password

Change Guest Password

This feature enables administrator to change the password for the Guest account. The Guest account does not have administrator privileges. Guest user is not allowed to make any changes in configuration or view all the administrative pages. The default username and password for this user account is “guest”.

To change the Guest password, type a new password in both **New Password** and **Verify Password** fields, then click on the *Apply* button.

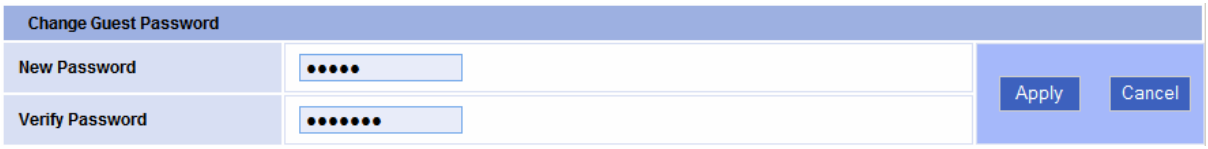


Figure 14.6 Change Guest Password

Network Configuration

This setting is self explanatory. Care is to be exercised in setting the IP address and subnet mask values. Incorrect IP address /subnet mask setting will render RMC inaccessible from the network. Invalid IP/Subnet range will also cause RMC to be inaccessible from the network. RMC do have error trapping and will warn of any invalid settings. If for some reason, the trapping misses and the invalid values are accepted by the unit and cause network connection difficulties, contact your distributor for assistance.

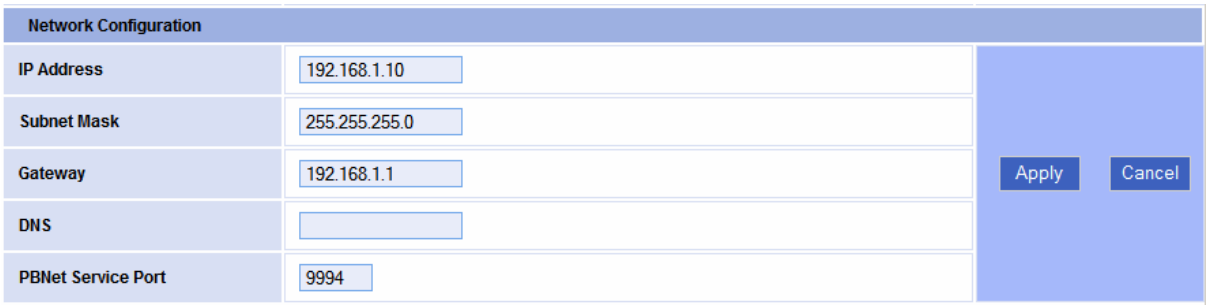


Figure 14.7 Network Configuration

IP Address
You can change the IP address of RMC using this option. Enter the new IP address.

Subnet Mask
Set the subnet mask of the device using this option.

Gateway
Set the default gateway of the device using this option.

For the example below, user can change the IP Address manually to other address other then the default IP address.

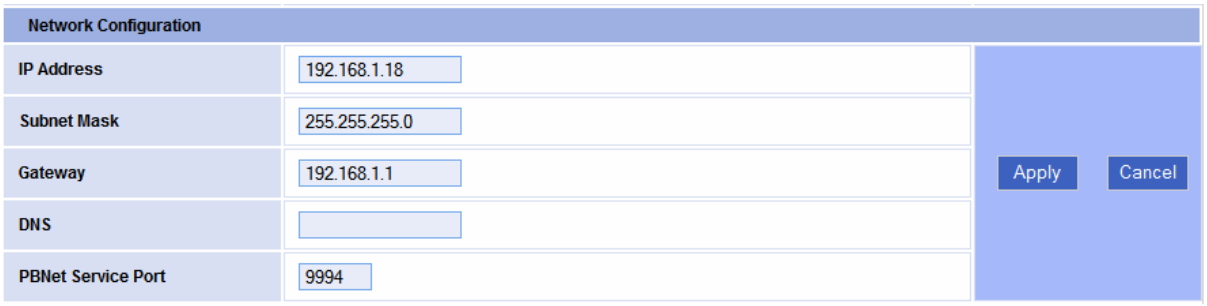


Figure 14.8 Change IP Address

PBNet Service Port
This is a TCP/IP port setting. It is used for communication with other RMC units or WEC expansion units. If other RMC units or expansion units are present, ensure that all RMC and any expansion units are set to the same service port. Default port number is port *9994*. User can choose to use other port numbers that are not used by any PC or equipments on the network. Example, port *80*.

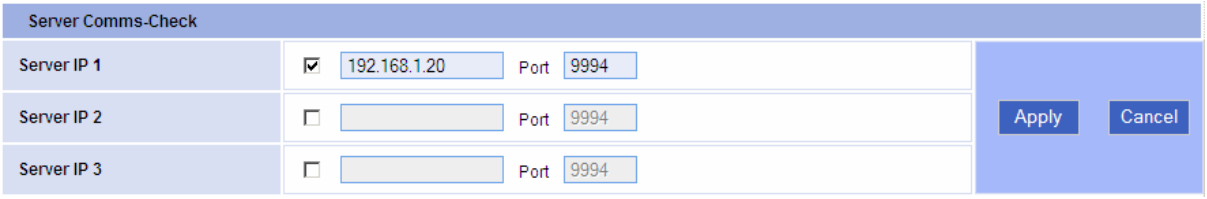
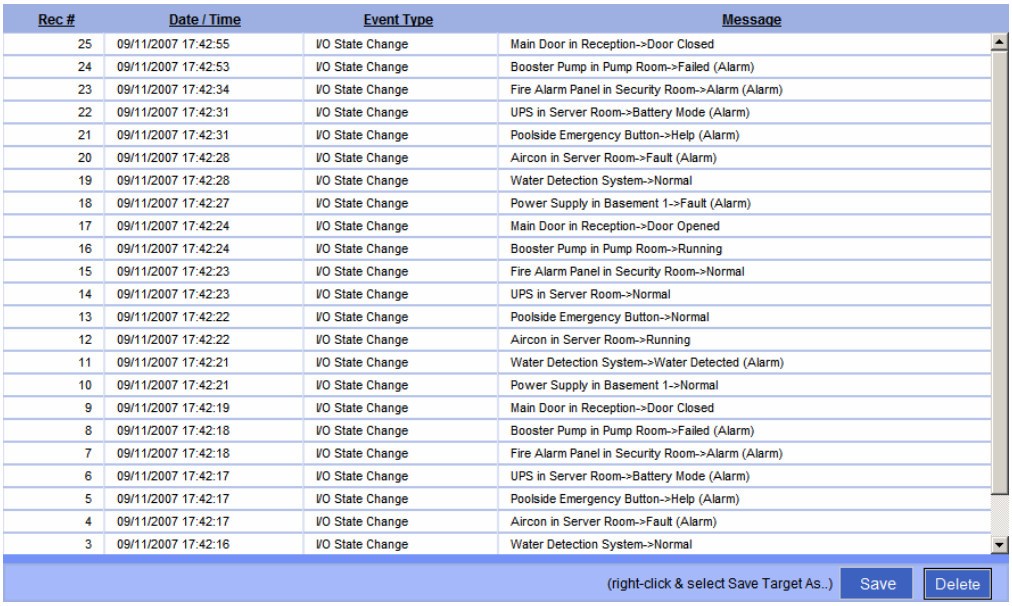


Figure 14.9 Server Commns-Check

Server Comms-Check
When there are multiple RMC (RMC1 and/or RMC2) on the network, user can configure the controllers to check on each other's connectivity. For example, upon lost communications with Server 1 eg *192.168.1.20*, RMC will send an SMS stating communication timeout with *192.169.1.20*. Up to three servers can be assigned. Default port number being used is port *9994*.

Chapter 15: Event Log Page

The Event Log Page has three buttons: *Save*, *XML*, and *Delete*. The event logs can be saved to a file using the browser's "save to file" capability. Each event is logged with the Record Number, Date/ Time, Event Type, and Messages as shown.



Rec #	Date / Time	Event Type	Message
25	09/11/2007 17:42:55	I/O State Change	Main Door in Reception->Door Closed
24	09/11/2007 17:42:53	I/O State Change	Booster Pump in Pump Room->Failed (Alarm)
23	09/11/2007 17:42:34	I/O State Change	Fire Alarm Panel in Security Room->Alarm (Alarm)
22	09/11/2007 17:42:31	I/O State Change	UPS in Server Room->Battery Mode (Alarm)
21	09/11/2007 17:42:31	I/O State Change	Poolside Emergency Button->Help (Alarm)
20	09/11/2007 17:42:28	I/O State Change	Aircon in Server Room->Fault (Alarm)
19	09/11/2007 17:42:28	I/O State Change	Water Detection System->Normal
18	09/11/2007 17:42:27	I/O State Change	Power Supply in Basement 1->Fault (Alarm)
17	09/11/2007 17:42:24	I/O State Change	Main Door in Reception->Door Opened
16	09/11/2007 17:42:24	I/O State Change	Booster Pump in Pump Room->Running
15	09/11/2007 17:42:23	I/O State Change	Fire Alarm Panel in Security Room->Normal
14	09/11/2007 17:42:23	I/O State Change	UPS in Server Room->Normal
13	09/11/2007 17:42:22	I/O State Change	Poolside Emergency Button->Normal
12	09/11/2007 17:42:22	I/O State Change	Aircon in Server Room->Running
11	09/11/2007 17:42:21	I/O State Change	Water Detection System->Water Detected (Alarm)
10	09/11/2007 17:42:21	I/O State Change	Power Supply in Basement 1->Normal
9	09/11/2007 17:42:19	I/O State Change	Main Door in Reception->Door Closed
8	09/11/2007 17:42:18	I/O State Change	Booster Pump in Pump Room->Failed (Alarm)
7	09/11/2007 17:42:18	I/O State Change	Fire Alarm Panel in Security Room->Alarm (Alarm)
6	09/11/2007 17:42:17	I/O State Change	UPS in Server Room->Battery Mode (Alarm)
5	09/11/2007 17:42:17	I/O State Change	Poolside Emergency Button->Help (Alarm)
4	09/11/2007 17:42:17	I/O State Change	Aircon in Server Room->Fault (Alarm)
3	09/11/2007 17:42:16	I/O State Change	Water Detection System->Normal

Figure 15.1 Event Log

View Event Log in XML

Clicking the *XML button* will display the contents of the event log in XML format

```
<?xml version="1.0" ?>
- <events_list>
  - <event>
      <rec>1</rec>
      <time>09/11/2007 17:42:13</time>
      <type>Info</type>
      <desc>Log cleared</desc>
    </event>
  - <event>
      <rec>2</rec>
      <time>09/11/2007 17:42:16</time>
      <type>I/O State Change</type>
      <desc>Power Supply in Basement 1->Fault (Alarm)</desc>
    </event>
  - <event>
      <rec>3</rec>
      <time>09/11/2007 17:42:16</time>
      <type>I/O State Change</type>
      <desc>Water Detection System->Normal</desc>
    </event>
  - <event>
      <rec>4</rec>
      <time>09/11/2007 17:42:17</time>
      <type>I/O State Change</type>
      <desc>Aircon in Server Room->Fault (Alarm)</desc>
    </event>
  - <event>
      <rec>5</rec>
      <time>09/11/2007 17:42:17</time>
      <type>I/O State Change</type>
      <desc>Poolside Emergency Button->Help (Alarm)</desc>
    </event>
  - <event>
      <rec>6</rec>
      <time>09/11/2007 17:42:17</time>
      <type>I/O State Change</type>
```

Figure 15.2 Event Log in XML format

Save Event Log in XML

Move the mouse over the *Save* button and Right click on the button and select "Save Target as..".

Delete Event Log

The *Delete* button enables user to clear the event log memory. When user clicks on it, it will prompt user to confirm this action. If user clicks on Cancel instead, the event log memory is not cleared.

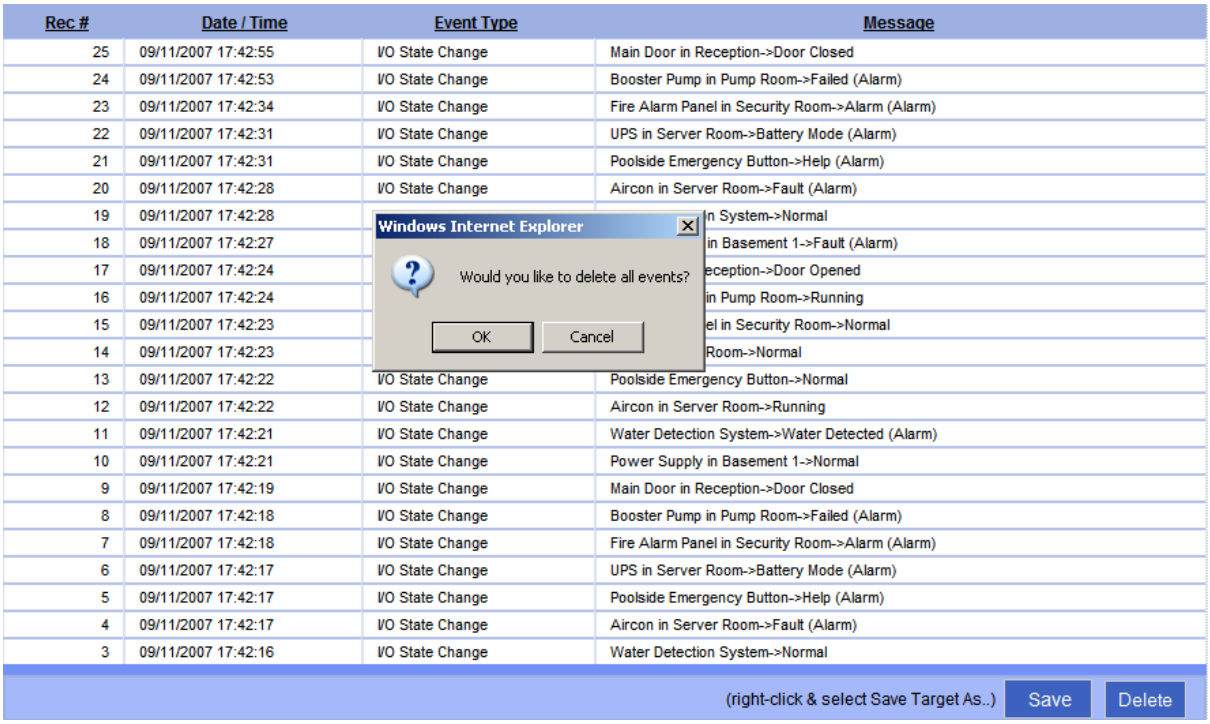

Rec #
Date / Time
Event Type
Message
25 09/11/2007 17:42:55 I/O State Change Main Door in Reception->Door Closed
24 09/11/2007 17:42:53 I/O State Change Booster Pump in Pump Room->Failed (Alarm)
23 09/11/2007 17:42:34 I/O State Change Fire Alarm Panel in Security Room->Alarm (Alarm)
22 09/11/2007 17:42:31 I/O State Change UPS in Server Room->Battery Mode (Alarm)
21 09/11/2007 17:42:31 I/O State Change Poolside Emergency Button->Help (Alarm)
20 09/11/2007 17:42:28 I/O State Change Aircon in Server Room->Fault (Alarm)
19 09/11/2007 17:42:28
18 09/11/2007 17:42:27
17 09/11/2007 17:42:24
16 09/11/2007 17:42:24
15 09/11/2007 17:42:23
14 09/11/2007 17:42:23
13 09/11/2007 17:42:22 I/O State Change Poolside Emergency Button->Normal
12 09/11/2007 17:42:22 I/O State Change Aircon in Server Room->Running
11 09/11/2007 17:42:21 I/O State Change Water Detection System->Water Detected (Alarm)
10 09/11/2007 17:42:21 I/O State Change Power Supply in Basement 1->Normal
9 09/11/2007 17:42:19 I/O State Change Main Door in Reception->Door Closed
8 09/11/2007 17:42:18 I/O State Change Booster Pump in Pump Room->Failed (Alarm)
7 09/11/2007 17:42:18 I/O State Change Fire Alarm Panel in Security Room->Alarm (Alarm)
6 09/11/2007 17:42:17 I/O State Change UPS in Server Room->Battery Mode (Alarm)
5 09/11/2007 17:42:17 I/O State Change Poolside Emergency Button->Help (Alarm)
4 09/11/2007 17:42:17 I/O State Change Aircon in Server Room->Fault (Alarm)
3 09/11/2007 17:42:16 I/O State Change Water Detection System->Normal
Windows Internet Explorer
Would you like to delete all events?
OK
Cancel
(right-click & select Save Target As..)
Save
Delete

Figure 15.3 Clear Event Log confirmation

Chapter 16: Help Page

RMC allows a number of important functions to be accessed and controlled remotely via SMS by the listed and authorized mobile phones. The four categories of users (Operation, Escalation, Forward, and Authorizer) have specific rights in the use of various remote control functions.

SMS Remote Action		SMS Command	Sample Command	Comment	Rights	
					Operation	Authorizer
Query Mobile Phone Numbers	Query Operation number(s)	?rop X	?rop A	X = Group identifier from A - H Query whole group	✓	✓
	Query Escalation number(s)	?rep X	?rep A	X = Group identifier from A or B Query whole group	✓	✓
	Query Forward number	?rfp	?rfp	Query forward number	✓	✓
	Query Authorizer number(s)	?rap N	?rap 1	N = Authorizer phone 1-3 Query whole group leave N empty	✗	✓
		?rap	?rap			
Phone Management	Add / Delete / Replace Operation number	#wop XN,phn_number	#wop A1,98765432	X = Group identifier from A -H N = Operation phone 1-5 Delete number leave phn_number empty	✗	✓
		#wop XN,	#wop A1,			
	Add / Delete / Replace Escalation number	#wep XN,phn_number	#wep A1,98765432	X = Group identifier from A or B N = Operation phone 1 - 5 Delete number leave phn_number empty	✗	✓
		#wep XN,	#wep A1,			
	Add / Delete / Replace Forward number	#wfp N,phn_number	#wfp 1,98765432	N = Forward phone 1 Delete number leave phn_number empty	✗	✓
		#wfp N,	#wfp 1,			
	Add / Delete / Replace Authorizer number	#wap N,phn_number	#wap 1,98765432	N = Authorizer phone 1-3 Delete number leave phn_number empty	✗	✓
		#wap N,	#wap 1,			
Query I/O & system status	Query Input status	?ip N	?ip 1	N = input 1 - 8 input_name = input description	✓	✓
		?ip input_name	?ip ups			
	Query Output status	?op N	?op 1	N = output 1 or 4 output_name = output description	✓	✓
		?op output_name	?op siren			
	Query Analog Input status	?ai N	?ai 1	N = analog input 1 or 4 analog_input_name = analog description	✓	✓
		?ai analog_input_name	?ai room temp			
	Query all I/Os	?io	?io	System reply with IO status N = Normal or A = Alarm	✓	✓
	Query system status	?syscheck	?syscheck	System reply with Telco signal strength	✓	✓
Output Control	Switch on output	#on output_name	#on siren	output_name = output description	✓	✓
	Switch off output	#off output_name	#off siren	output_name = output description	✓	✓
	Pulse output	#ps output_name	#ps siren	output_name = output description	✓	✓
Repeat Configuration	Set number of repeat times	#rpt N	#rpt 2	N = number of times SMS repeat 0 = disable repeat	✗	✓
			#rpt 0			
	Set repeat interval	#rpt-time N	#rpt-time 5	N = repeat time interval in minutes	✗	✓
	Query repeat status	?rpt	?rpt	System reply with repeat interval	✓	✓

Figure 16.1 Help Page

Note:
* All SMS remote commands, Input(X), Output(Y), and Analog Input(AI) are non-case sensitive
* Space is necessary after each command and parameters passed are separated by commas
* Forward and Operation group have same rights

Two important arguments are used in conjunction with the action commands. [**?**] Is a query and [**#**] is a set argument.

Example: ?ROP is to query the device: Read Operation Phone
#WOP is to write to the device: Write Operation Phone

Note: If a command sent to RMC does not match the required format or is invalid, RMC will not respond to the querying mobile phone and no action is taken by it. Similarly, if any unauthorized mobile phones try to query a status or to do a set command, it will also not respond to that mobile phone.

Query Mobile Phone Numbers

An authorized person can perform query and hanging of Operation, Forward, and Authorizer mobile phone numbers stored in the unit's memory.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Query Operation number(s)	?rop X	?rop A	X = Group identifier from A –H Query whole group	yes	yes
Query Escalation number(s)	?rep X	?rep A	X = Group identifier from A / B Query whole group	Yes	yes
Query Forward number	?rfp N	?rfp 1	N = Forward phone 1 Query forward number	yes	yes
Query Authorizer number(s)	?rap N	?rap 1	N = Authorizer phone 1-3 Query whole group leave N empty	no	yes
	?rap	?rap			

Table 16.1 Query Mobile Phone Numbers

Phone Management

An authorized person can remotely phone manage the Operation, Forward, and Authorizer mobile phone numbers stored in the unit's memory. The Authorizers are allowed to perform Addition, Replacement, and Deletion of mobile phone numbers remotely using SMS commands.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Add / Delete / Replace Operation number	#wop XN,phn_number	#wop A1,98765432	X = Group identifier from A -H N = Operation phone 1-5 Delete number leave phn_number empty	no	yes
	#wop XN,	#wop A1,			
Add / Delete / Replace Escalation number	#wep XN,phn_number	#wep A1,98765432	X = Group identifier from A or B N = Operation phone 1 - 5 Delete number leave phn_number empty	no	yes
	#wep XN,	#wep A1,			

Add / Delete / Replace Forward number	#wfp N,phn_number	#wfp 1,98765432	N = Forward phone 1 Delete number leave phn_number empty	no	yes
	#wfp N,	#wfp 1,			
Add / Delete / Replace Authorizer number	#wap N,phn_number	#wap 1,98765432	N = Authorizer phone 1-5 Delete number leave phn_number empty	no	yes
	#wap N,	#wap 1,			

Table 16.2 Phone Management

Query IO & system status

Operation and authorized users can query the status of Inputs/outputs and perform system checks. RMC will reply the current state of the Input and Output, and the System status using the respective commands.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Query Input status	?ip N	?ip 1	N = input 1 - 8 input_alarm = none or open or close System reply with Input state	yes	yes
	?ip input_name	?ip ups			
Query Output status	?op N	?op 1	N = output 1 - 4 output_name = output description System reply with Output state	yes	yes
	?op output_name	?op siren			
Query Analog Input status	?ai N	?ai 1	N = analog input analog_input_name = analog description System reply with Analog reading	yes	yes
	?ai analog_input_name	?ai room temp			
Query all I/Os	?io	?io	System reply with IO status N = Normal or A = Alarm	yes	yes
Query system status	?syscheck	?syscheck	System reply with Telco signal strength	yes	yes

Table 16.3 Query IO & system status

Output Control

Operation and authorized users can switch the 2 outputs ON, OFF or Pulse by sending the commands below. Users can also enable or disable the logic specify in the Output Config page.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Switch on output	#on output_name	#on siren	output_name = output description	yes	yes

Switch off output	#off output_name	#off siren	output_name = output description	yes	yes
Pulse output	#ps output_name	#ps siren	output_name = output description	yes	yes

Table 16.4 Output Control

Repeat Configuration

Authorized users can change the SMS alarm repeat settings sending the commands below. To cancel repeat sending, any mobile phone from the operation or forward must acknowledge to RMC by replying the acknowledge command (*#ack*).

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Set number of repeat times	#rpt N	#rpt 2	N = number of times SMS repeat	no	yes
		#rpt 0	0= disable repeat		
Set repeat interval	#rpt-time N	#rpt-time 5	N = repeat time interval in minutes	no	yes
Query repeat status	?rpt	?rpt	System reply with repeat interval	yes	yes
Acknowledge repeat alarm	#ack	#ack	System reply with Ack received. SMS repeat stops	yes	yes

Table 16.5 Repeat Configuration

Remote SMS command Benefits

With the remote command functionality above it saves time and effort.

- Re-assigning of operation personnel, a change of mobile phone number is also common. Rather than having to physically go to the installation site with a notebook computer, the authorized personnel can perform the change from anywhere using their mobile phone. Where there are many installed sites this becomes very efficient.

- Remotely add, change or clear any setting of repeat time interval in RMC memory. Flexibility to change / clear the repeat SMS, once users are familiar with the monitored site and wish to stop receiving repeat SMS . Or a new site that you wish to receive the repeat SMS. All these control are just as simple by using the above remote command from anywhere using you mobile phone.

Chapter 17: About Page

The page shows the product information of the RMC, Product Name, Model, Serial Number, Mac Address, Firmware and the UI version of the device.

Product Name	Model	Serial Number	Mac Address	Firmware	UI Version
Message Master 4000	RMC1	PB101403	00:1C:96:00:00:A9	00.019.81	01.635

Figure 17.1 About Page

Chapter 18: Logoff Page

This page quits and logs out the Menu function. Once the user logs out, the usual User Name and Password is required to access the Menus. Always remember to logout at the end of each session to prevent any unauthorized user to access the pages unless user needs to monitor the device and equipments at all times. Click *Yes* to logout or *No* to return to previous page.

Figure 18.1 Logoff Page

Appendix A

Setting Static IP Addresses

First, you need to know the IP address and subnet mask settings for RMC. To find these, power up the RMC and after about 5 seconds, the display will show its IP address and subnet mask settings. The default values are:

Figure 19.1 Default IP Address

That is, the default IP address is *192.168.1.10* and the default subnet mask is *255.255.255.0*. This means the IP address of your PC may be set in the range *192.168.1.1* to *192.168.1.254* inclusive but obviously excluding *192.168.1.10*, which is the address for the RMC unit. For the examples below, we are using the address *192.168.1.100* for the PC.

Setting a Static IP Address for Windows 98

Step 1. Click on the *Start* button and select *Control Panel*. (Figure 19.2)

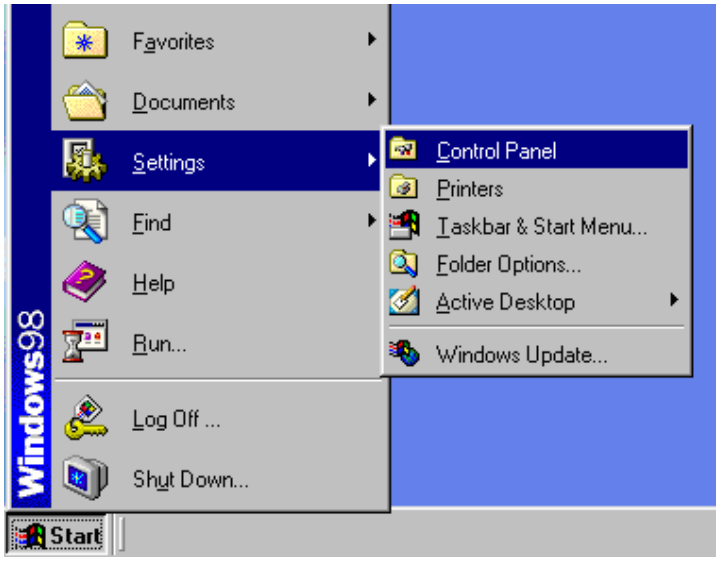


Figure 19.2 Start Button

Step 2. In the *Control Panel* window, double-click the *Network* icon. (Figure 19.3)

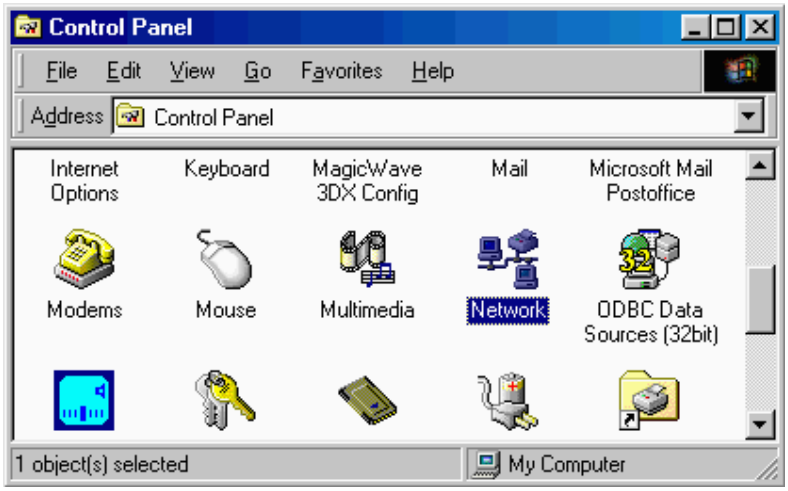


Figure 19.3 Control Panel

Step 3. You will see the Network settings window (Figure 19.4). Select the correct *TCP/IP -> Ethernet Adapter* (Ethernet card) configuration. The figure below only shows an example; the correct one in your situation will be the TCP/IP-to-Ethernet setting for the Ethernet card that is connected to the RMC. Select the correct adapter and click the *Properties* button.

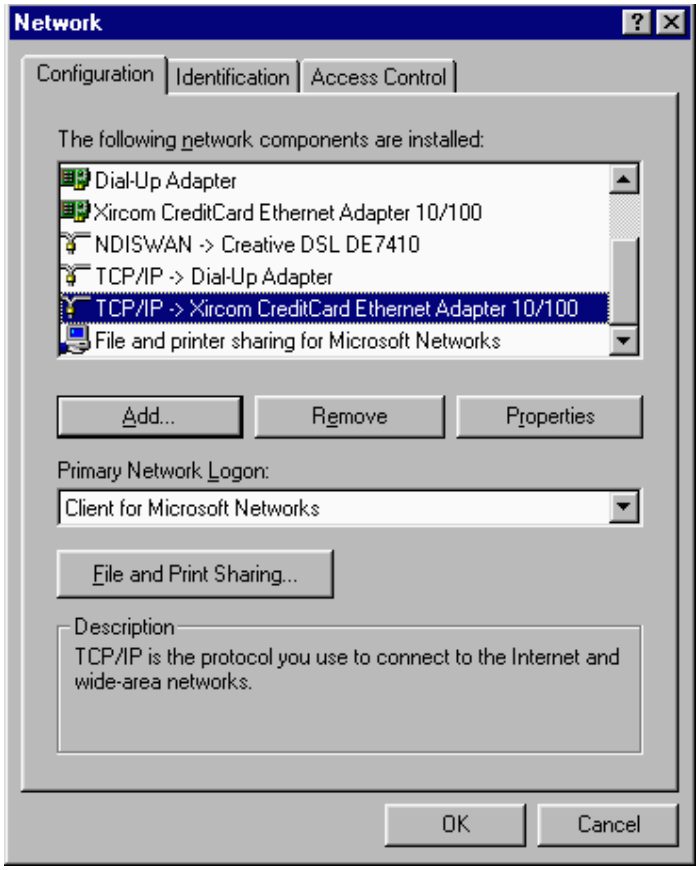


Figure 19.4 Network Settings

Step 4. You will then see the TCP/IP settings window as shown in (Figure 19.4). Enter the fixed IP address for the PC. If you are keeping the default IP settings for the RMC and are using it in a standalone environment, a suitable setting for the PC is an IP address of

192.168.1.100 and a subnet mask of *255.255.255.0*. Click *OK* to close the window and accept the changes.

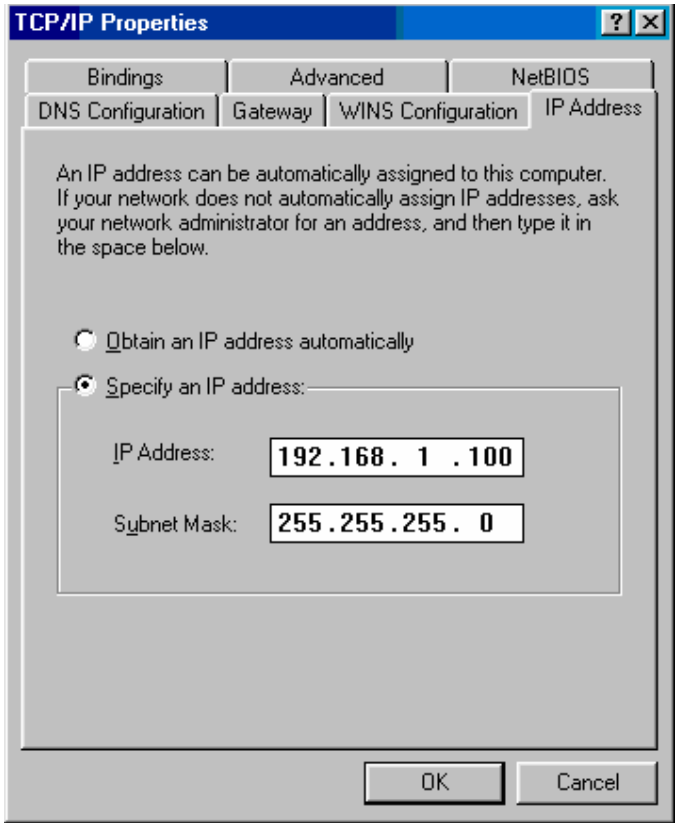


Figure 19.5 TCP/IP Settings

Step 5. Restart the PC for the settings to take effect. (Figure 19.6)

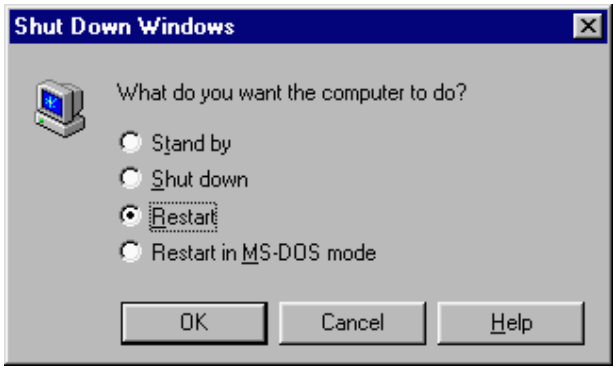


Figure 19.6 Shutdown Menu

Setting a Static IP Address for Windows 2000 / Windows XP

Step 1. Right click on the *My Network Places* icon on your desktop and select *Properties*.

Figure 19.7 My Network Places icon

Step 2. Right click on the *Local Area Connection* icon and select *Properties*.

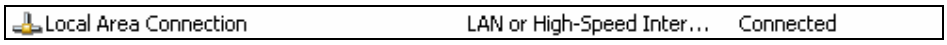


Figure 19.8 Local Area Connection icon

Step 3. Double-click on *Internet Protocol (TCP/IP)* and you will see the window. (Figure 19.9)

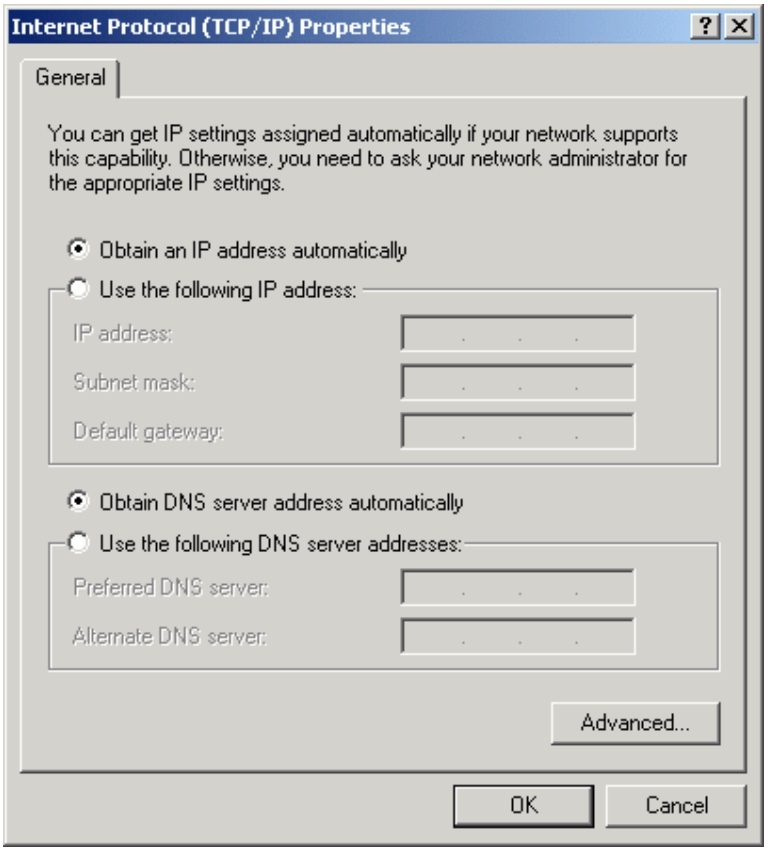

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Figure 19.9 IP Configuration

Step 4. Select *Use the following IP address* and in the *IP address* field, enter a suitable IP address for your PC, such as *192.168.1.100*. This is your PC's static IP address. In the *Subnet*

mask field, enter *255.255.255.0*. Leave the *Default gateway* field blank. You may leave the *Obtain DNS server address automatically* as it is.

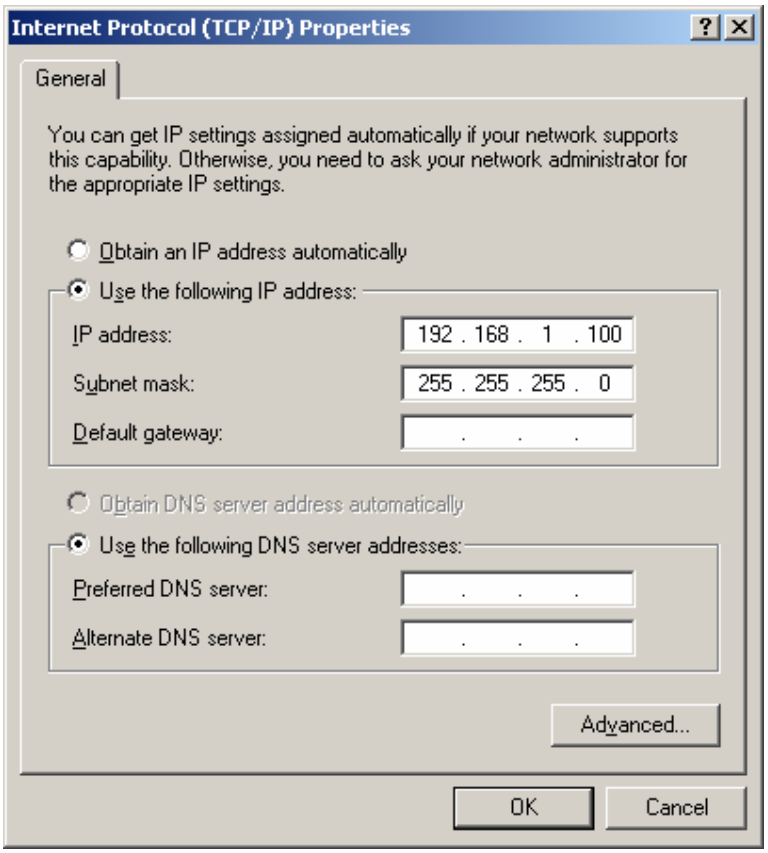

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 1 . 100
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Figure 19.10 IP Configuration Example

Step 5. Click the subsequent *OK* buttons to accept the settings and to close the windows until you get back to the desktop. Your IP settings are now correct.

- End of Document -